

Administrative Changes to Decrease Patient Absenteeism: A Quality Improvement Project

by

Stephanie Canipe

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Signature Faculty Coordinator

Date

Kim Holland, MSM, CPC

Tracey Robertson Bell, DNP, NNP BC

12-2-2019

Signature Program Director

Date

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Dedication

I dedicate this DNP project and manuscript to every member of my family, especially my husband, children, and parents who have been my steady support system for the last four years. Each of you have stood behind me throughout this monumental educational endeavor and I am forever grateful. I would have not been successful without your prayers, love, support, and guidance. In addition, I dedicate this manuscript to Geraldine “Sis” Mills, RN, who has been an exceptional mentor, example, and dear friend to me during my career as a registered nurse.

Abstract

Patient no-shows are individuals who fail to attend outpatient medical appointments without notification. This detrimental behavior leads to poor health outcomes, decrease in access to care, and financial losses. A literature review showed that enhancing communication techniques related to appointment reminders can lower non-attendance rates in a variety of outpatient clinic settings. Evidence-based information led to the formation of a quality improvement project with the aim of improving patient attendance with new communication techniques. Interventions included collecting data daily about all no-shows, performing a manual telephone reminder 24 hours prior to the scheduled appointment, and surveying the current patient population regarding their preferences for appointment reminders. The results revealed that the clinic no-show rate decreased from 7% to 1.3% during the eight-week project implementation. In addition, patient survey data demonstrated that 41% of the participants wished to have their reminder messages sent by text message; yet only 10% of the population were receiving them. Implications of the manual phone call reminders were an improved no-show rates despite patients' preferences for text message reminders. Future projects directed at enrolling patient cellphone numbers as the primary SMS appointment reminder may be both desirable and beneficial.

Key words: Patient no-show; non-attendance; primary care; text-messaging; attitude; inefficiency; reminder systems; generations; appointment preferences; telephone reminders; follow-up; QI project; Cochrane database.

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Chapter One: Overview of the Problem of Interest

Aging populations require increased chronic primary care visits. This factor has led to reductions in provider availability and clinic interruptions in a variety of outpatient environments (Gupta & Denton, 2008). Providers spend an average of 15 to 30 minutes with clients based on client's current needs and their level of care. Clinic scheduling has become challenging and further complicated by patients who are absent or tardy to their appointments. Patients who missed healthcare appointments have created unused, unavailable appointments, disruptions to clinic routines, and a loss of revenue.

Primary care patients expect reasonable appointment availability. According to Ansell, Crispo, Simard, & Bjerre, (2017) patients are dissatisfied when their provider cannot conveniently see them. "No-shows" are described as individual patients who miss appointments without prior office notification (Davies et al., 2016). "Tardy" patients are those who arrive 15-20 minutes late for appointments (Martin, Perfect, & Mantle, 2005). Patient no-shows and tardiness historically have reduced appointment availability, increased clinic operating staffing cost, and triggered clinic in-efficiencies (Faiz & Kristofferson, 2018).

This chapter provided a description of background information regarding the clinical significance of patient no-shows and tardiness. Past and present research exhibited evidence that various interventions are helpful with reducing similar attendance problems. The purpose of the quality improvement (QI) project was to implement strategies to lessen the no-show rates.

Background Information

Patient tardiness and absenteeism cause significant interruptions in workflow among ambulatory care clinics. No-shows have been extensively studied to understand this patient behavior and the long-term effects (Perron et al., 2013). This patient behavior impacts other

clients, providers, and clinic staff (Martin et al., 2005). In addition, no-shows are associated with (1) poorer health outcomes related to chronic conditions, (2) decreased care access, (3) patient dissatisfaction, and (4) loss of clinic revenue (Davies et al., 2016).

Patients have many reasons to miss an appointment; many have cited forgetfulness as the number one cause (Martin et al., 2005). According to Lacy, Paulman, Reuter, and Lovejoy (2004) additional barriers included family responsibilities, employment restrictions, transportation, or office visit expenses. These same authors found that 65% of the participants claimed emotional barriers as a reason for missing appointments and 44% claimed disrespect by health care professionals as a reason to no-show. Emotional barriers were described as either the fear of bad news or of an invasive procedure(s). Clients felt disrespected as a result of unnecessary wait times and office staff who discounted concerns about their health status (Lacy et al., 2004).

Patients with chronic conditions who are absent have led to an increase in hospitalizations (Nutti et al., 2012). Progressive diseases have required frequent, consistent monitoring to prevent further complications. Diabetes, for example, is a disease that is “ambulatory care sensitive” i.e., patients who received consistent care in the outpatient setting will likely have better health outcomes and less need of acute care services. Yet, diabetic patients who miss appointments are more likely to have “higher glycosylated hemoglobin (A1C) levels and therefore, poorer glycemic control than those patients that attend appointments” (Nutti et al., 2012, p. 2).

The lack of schedule availability decreased access to healthcare and increased patient dissatisfaction (Gupta & Denton, 2008). Longer wait times created unnecessary emotional stress and have the potential for adverse physical complications (Gupta & Denton, 2008). According

to Lacy et al. (2004) waiting occurred in three different ways (1) hours, days, or weeks leading to the appointment; (2) time spent in the waiting room; and (3) waiting for the provider once in the exam room. Participants described all wait phases to a feeling of being in an “assembly line” (Lacy et al., 2004, p. 543).

Primary care clinics perform healthcare services related to wellness, illness, and chronic conditions. Appointment schedules are constructed to allow enough time for procedures, examinations, or consultations (Gupta & Denton, 2008). Disregarded appointments disrupt patient appointment schedules and have led to “unnecessary services, overuse of emergency department, [and] misuse of medications” (James et al., 2015, p. 18). According Kheirhah, Feng, Travis, Tavakoli-Tabasi, & Sharafkhaneh (2016) no-show rates at ten Veterans Administration (VA) outpatient clinics ranged from 3 to 80 % in 2008. The cost of those disregarded appointments resulted in \$196 per patient. This same study also found that primary care clinics had greater non-attendance rates than those of other medical specialties (Kheirhah et al., 2016).

Significance of Clinical Problem

Tardiness was also detrimental to clinic efficiency as are no-shows. Attendance studies has revealed that a 15-minute late arrival caused a 2-minute delay in patient care (Neprash, 2016). Such delays have led to less patient examination time, limited discussion of complaints, fewer diagnoses, and changes to provider ordering behaviors (Gebhart, 2017; Neprash, 2016). Those changes “increase the likelihood that the patient will revisit the same physician within two weeks possibly due to worsening symptoms or at the urging of the physician, who did not have time to adequately address care needs during the initial appointment” (Neprash, 2016, p. 3).

This QI project examined no-shows within a family medicine clinic located in the southeast. The aim of this project was to enhance communication from the clinic to the patients

about scheduling. Staff consisted of three providers, six assistants, and an office manager during the intervention phase. An average day consisted of 20-30 scheduled patients in clinic.

According to clinic management the mean no-show average per provider during an eight-week period in 2018 was 7%; as was the overall clinic no-show rate (D. Cooper, personal communication, January 30, 2019). Disregarded appointments were also cited as common issue within the entire physician's network system as well (R. Scott, personal communication, July 03, 2018). Currently, there have not been QI projects or evidence-based interventions (EBIs) utilized to remedy this situation within this clinic or medical network.

Percentage for no-show appointments was calculated by dividing the total number of no-show appointments by the number of appointments, then multiplying the remainder by 100 (Percentage of No-Show Appointments, n.d.). The continuation of the current trend could yield a rate of 28% per provider and clinic within the following year. This inflation would come close to exceeding the 2015 national rate of 15-30% for patient non-attendance (Davies et al., 2016).

The attendance problem within this clinic was studied to determine the financial and societal ramifications. The 8-week period examined from 2018 had a total of 42 business days in which approximately 1,050 patients were scheduled (based on average of 20 to 30 patients per day clinic average). Of those 1,050 patients scheduled 7% was the known no-show rate, equaling 73.5 lost appointments. Those lost appointments were calculated using the \$196.00 per patient 2008 data which showed a loss of \$14,406.00 in clinic revenue (Kheirhah et al., 2016). An inflation calculator was used to figure the 2008 cost into 2018 monetary values. The 2018 per patient rate increased to \$228.59, which meant that the overall loss also increased to \$16,801.37 for that 8-week period.

Access to primary care and health services is one of the social determinants of health as listed in Healthy People 2020. This publication listed “limited availability of health care resources” (Access to Health Services, n.d.) as a determinate that has led to poor health outcomes. Physician availability and provider shortages have made healthcare access scarce. The health care resource shortage is then compounded when limited appointments with appropriate providers go unused due to no-shows.

Question Guiding Inquiry (PICO)

The purpose of this QI project was to provide administrative procedural changes within a family medicine clinic to lessen the no-show rate. Administrative interventions were feasible with the providers and physician network management. The guiding question for this QI project was “Will the no-show rate for this primary care clinic be decreased with administrative changes to clinic procedures?”

Population. Patient population’s ages at this clinic site ranged from birth to early 90’s. Most patients were middle age (45 – 65), white, and female. A large majority of the clients have private health insurance and one chronic health condition that requires on-going routine care. Kheirkhah et al. (2016) found that geriatric women were among the highest no-show patients as compared to men in primary care.

Intervention. Ideas for interventions developed after multiple meetings amongst office staff, management, and information systems representatives. Administrative interventions emerged. New appointment systems, including open access scheduling, was discussed but found non-feasible due to restrictions within the network. All agreed on administrative procedural changes to decrease absenteeism within this medical office. EBI(s) were assimilated and agreed upon that included (1) a missed appointment letter to no-show patients, (2) a staff led telephone

appointment reminder, and (3) a survey of patients (excluding walk-ins or same day appointments) to determine satisfaction of appointment reminders.

Comparison. Prior to this time, the project site did contact some, but not all no-show patients. Disregarded appointments remain unused unless the appointment could be filled by a patient who presented un-announced. The reminder system provided one notification given by either an automated telephone call, SMS, or email within 48-hours of the appointment. Email notification was another option available on the patient portal. The use of the patient portal reminder had not been studied; it was unknown if patients had utilized this method of contact. Last, patient opinions of the various reminder notification systems were unknown.

Outcome(s). There were three measurable outcomes for this QI project. The first outcome measure determined if the no-show rate during the intervention phase improved over a three-month period. The second outcome measure determined if adding the staff led telephone reminder procedure helped to decrease the no-show rate by affecting the number of patients who confirmed, cancelled, or rescheduled their appointments. Lastly, the third outcome evaluated patient satisfaction of the current reminder systems and identified types of unnotified appointment encounters (lab work, physical exam, etc.).

Summary

There are many challenges related to disregarded appointments in healthcare. No-show and tardy patients create disturbances that have led to decreased access, poor health outcomes, patient dissatisfaction, and loss of clinic revenue. Medical offices that seek to change no-show behaviors with their patients believe in the importance of continuity of healthcare. After much consideration of the significance of this clinical problem, evidence was gathered to support a feasible solution.

Chapter Two: Review of the Literature

The concepts no-show, patient reminder systems, and outpatient appointment scheduling were the key phrases used in this literature review. Goals were (1) to define the key concept phrases and any associated variables, (2) examine the existing types of research for validity, and (3) determine the presence of quality EBI(s). Understanding the concepts and variables decreased the possibility of misinterpretation.

For the purposes of this QI project, no-shows are defined as “patients who neither kept nor cancelled scheduled appointments” (Davies et al., 2016, p. 1). Patient reminders systems are categorized as “pre-appointment reminders” and “default reminders”. They are defined as:

any action to contact patients shortly before they are due to ...attend a healthcare appointment and remind them to ...attend their appointment. Default reminders (sometimes called ‘defaulter actions’ or ‘late patient tracers’); [are] actions undertaken when a patient fails to keep an appointment. They generally aim to re-establish contact with the patient, to find out why they did not attend, and to encourage re-engagement with services. (Liu et al., 2014, p. 6).

Automated telephone calls are one of the primary methods used as a pre-appointment reminder. These computerized systems issue verbal messages to human recipients that vary in length, content, and ability to perform actions based on input from the receiver (Tanke & Leirer, 1994). Manual reminder calls are those pre-appointment reminders delivered by staff members to patients prior to the appointments (Woods, 2011). SMS or text messaging appointment details is another popular pre-appointment reminder. SMS messages sent to patient cell phones are cost effective and reliable (Martini da Costa, Salomao, Martha, Pisa, & Sigulem, 2009). Default

reminders are typically lettering, or postcards sent after a patient has missed an appointment (Liu, et al., 2014).

Methodology

A literature search was performed multiple times for all English-language studies on patient no-shows and reminder systems in the outpatient, primary care setting. This search utilized PubMed Medline, CINAHL, and Google Scholar for original research related to these topics. Two research librarians aided with the initial search.

Sampling strategies. Initially, a Medline search was conducted using the Boolean search (“patient” AND “no-show” AND “primary care”); (“text messaging” AND “no-shows”) AND (“telephone reminders”); (“no-show appointments” AND “follow-up”); (“primary care” AND “no-show”); (“patients” AND “non-attendance”) AND (“attitude”); (“primary care” AND “inefficiency”); (“reminder systems”) AND (“Cochrane database”); (“generations” AND “appointment preference”) with filters for English-language documents published within the last five to ten years. This time focused search produced a small result that lacked literature for written appointment reminders. The search was then drawn out to include literature from the last 25 years. This yielded 4872 articles. The purpose of extending this literature search beyond the last 5 years was to ensure that articles related to written notifications were also included.

This process was duplicated using EBSCOhost database CINAHL Complete with the Boolean search (“patient” AND “no-show” AND “primary care”); (“text messaging” AND “no-shows”) AND (“telephone reminders”); (“no-show appointments” AND “follow-up”); (“generations” AND “appointment preference”); (“patients” AND “non-attendance”) AND (“attitude”) with filters for English-language, evidence based, full-text documents published in

the last 25 years. This yielded 67 articles. Once more there was a need to extend the search to older literature in order to find results related to written reminders.

Finally, a Google Scholar search was conducted using the Boolean search (“QI project” AND “patient no-shows” AND “primary care”). The result yielded 885 articles (see Appendix A). One other source included a manual search of cited references from a variety of articles, which yielded 33 additional articles. Article age delimitations were 1994 to present because no-shows being a topic with older relevant studies. Finally, the net number of articles that emerged was 5857 (see Appendix B).

Evaluation criteria. The literature results were examined for inclusion criteria. This criterion was based on originality of the research or systematic reviews for no-shows in primary care settings. Articles based on disregarded appointments in acute care facilities were not included due to the difference in appointments and conditions with that level of care. All outpatient studies were included due to large number of no-shows for those clinics. Studies of adults over 18 years were included; whereas pediatrics were excluded. This exclusion was based on this population’s dependence of a parent or guardian for assistance with attendance to medical appointments.

Literature related to appointment scheduling techniques was used for background knowledge or eliminated. Strong evidence suggested that changing the appointment system from traditional to other methods such as double booking or open access significantly reduced no-show rates. Interventions that focused on scheduling is currently not feasible.

After applying exclusion criteria, 25 studies emerged (see Appendix C). Of those, 22 articles were quantitative, two were qualitative, and one was a mixed method study. The mix-

method study was designated as the sentinel article due to its relevance to the structure of the QI project.

Literature Review Findings

Interventions relating to no-show appointments began to develop from a synthesis of the literature. Qualitative research provided participants' beliefs about no-show, barriers to accessing healthcare, and reasons for their behaviors (Gauthier, Lindwall, Davis, & Quinet, 2012; Lacy et al., 2004). Multi-method educational interventions increased patient knowledge of how keeping medical appointments was essential to self-care (DuMontier, Rindfleisch, Pruszyński, & Frey, 2013). Survey interventions showed the importance of understanding patient preferences about appointment reminder systems (Crutchfield & Kistler, 2017). Surveys also provided knowledge about how information could be used to improve the delivery of the reminders (Finkelstein, Liu, Jani, Rosenthal, & Poghosyan, 2013).

Quantitative data demonstrated a manipulation of the reminder system(s) (written, automated and manual telephone calls, email, or SMS). Telephone reminder interventions included (1) increasing the number of pre-appointment phone calls, (2) automated compared to personal made phone calls, and (3) the timing of the reminder phone calls (Childers, Laird, Newman, & Keyashian, 2016; , Williams, & Harman, 2015; Griffin, 1998; Hasvold & Wootto, 2011; Liu et al., 2014; Parikh et al., 2010; Shah et al., 2016; Steiner, Shainline, Bishop, & Xu, 2016; Tanke & Leirer, 1994; Teo, Forsberg, Marsh, Saha, & Dobscha, 2017; Woods, 2011). SMS reminders were compared to all others to determine if there were specific differences or if they were more effective than the other methods (Gurol-Urganci, de Jongh, Vodopivec-Jamsek, Atun, & Car, 2013; Martini da Costa et al., 2009; Perron et al., 2013; Robotham, Satkunanathan, Reynolds, Stahl, & Wykes, 2016; Steiner et al., 2016). Finally, written communications as

default reminders were studied which included postcards, take home cards, and appointment letters (DuMontier et al., 2013; Griffin, 1998; Liu et al., 2014; Saine & Baker, 2003).

Synthesis of the literature yielded positive and negative implications. Nurse led patient education produced less no-shows when patients understood the effects of this behavior (DuMontier et al., 2013; Griffin, 1998; Martin et al., 2005; Woods, 2011). The education provided by nursing staff with the associated manual telephone calls were found to be informative, personal, and concise. This education included in the interventions was information about the appointment details, potential barriers, and expectations (Childers et al., 2016; Clouse et al., 2015; Martin et al., 2005; Shah et al., 2016; Woods, 2011).

Patient cancellation rates increased with nurse-led manual telephone calls, inadvertently decreasing the no-show rates (Shah et al., 2016). Patients felt that staff manual telephone calls were the most effective reminder method (Childers et al., 2016; Clouse et al., 2015; Hasvold & Wootton, 2011; Martin et al., 2005; Perron et al., 2013; Shah et al., 2016; Woods, 2011). Automated telephone calls, SMS, and email had similar results related to patient satisfaction, which were lower than the manual calls (Gurol-Urganci et al., 2013; Martini da Costa et al., 2009; Robotham et al., 2016). Appointment reminders that combined multiple types of reminders were found to be effective and acceptable to patients (Martini da Costa et al., 2009).

No-show rates improved when patients received additional pre-appointment notification. Notifications included manual telephone calls, automated telephone calls, and SMS messages (Clouse et al., 2015; Gurol-Urganci et al., 2013; Hasvold & Wootton, 2011; Shah et al., 2016; Robotham et al., 2016). Studies that incorporated numerous notifications times with all types of reminders had an increase in patient attendance compared to their controls with only one reminder (Robotham et al., 2016).

Reminder notifications and lead time to appointments had positive influences on increased patient attendance. According to a study by Drewek, Mirea, and Adelson (2017) the concept of lead time to an appointment was described as that span of days between scheduling and the actual event. Their study found that appointments established between 0 to 30 days had a no-show rate of 23% compared to 47% for appointments that were made beyond 31 days. They also discovered that new consult appointments were more likely than follow-up appointments to experience a no-show and was unrelated to lead time (Drewek et al., 2017). Reminder notifications made at least one week ahead of the appointment led to greater attendance (Childers et al., 2016; Gauthier et al., 2012). An incidental finding revealed an increase in attendance occurred when patients had five or more appointments with various providers on the same day (Henry, Goetz, & Asch, 2012).

Negative implications were associated with automated message reminders compared to live ones. Studies implied that automated message systems were responsible for lower attendance rates and varied with office types (Perron et al., 2013; Teo et al., 2017). For example, attendance rates for primary care varied compared to those of mental health, substance abuse clinics, and gastroenterology (Clouse et al., 2015; Perron et al., 2013; Teo et al., 2017). SMS reminders are widely accepted in use. However, they pose potential ethical implications with risks associated to patient privacy (Martini da Costa et al., 2009).

Limitations of Literature Review Process

Limitations noted from the literature review included: (1) the lack of ability to replicate individual studies in different clinical environments, (2) moderate to low quality of the evidence, (3) financial barriers, (4) inadvertent lack of up-to-date patient contact information, (5) small sample sizes, (6) differences with actual interventions, and (7) operational limitations within

clinics being studied. Systematic reviews that rated evidence for quality had varying results that was listed as (1) moderate-quality for SMS being as effective as telephone, (2) low-quality for pre-appointment reminder phone calls, and (3) low to moderate-quality for default reminders (Gurol-Urganci et al., 2013; Liu et al., 2014). Research with manual telephone protocols cited limitations regarding staffing implementation and the lack of up-to-date patient contact information (Hasvold & Wootton, 2011; Parikh et al., 2010; Robotham et al., 2016; Shah et al., 2016; Teo et al., 2017; Woods, 2011).

Discussion

Patient perspectives of no-show appointments. Patients' perspectives were discussed in qualitative and quantitative reports. Forgetfulness was the most often reported reason for non-attendance (Crutchfield & Kistler, 2017; Griffin, 1998; Kaplan-Lewis & Percac-Lima, 2013; Lacy et al., 2004; Martin et al., 2005). Non-English-speaking patients cited problems with communication that led to misinterpretation of appointment details (Griffin, 1998; Kaplan-Lewis & Percac-Lima, 2013; Martin et al., 2005). Appointment coordination posed administrative errors associated with a lack of communication (Griffin, 1998).

Personal barriers included emotional worries, fears of worsening health status, and feeling disrespected by the medical establishment (Lacy et al., 2004). Physical barriers included an improvement in health; or the opposite, being too ill to attend (Griffin, 1998; Lacy et al., 2004). Social barriers included problems associated with transportation, employment restrictions, lack of childcare, cost, and appointment wait times (Griffin, 1998; Lacy et al., 2004).

Physical aspects of the clinic were also reason to disregard appointments. Clinic environmental barriers included parking problems (cost and lack of ease), over-crowded waiting

rooms, complicated appointment scheduling systems, and difficulty with understanding procedures for canceling appointments (Griffin, 1998; Lacy et al., 2004; Martin et al., 2005).

No-show patients lacked understanding about disregarding their appointments. Many felt that their absence allowed for the providers to have needed “down time” (Lacy et al., 2004). This patient knowledge deficit supports the need for patient education, which was shared in six of the 25 articles (Childers et al., 2016; Clouse et al., 2015; DuMontier et al., 2013; Griffin, 1998; Martin et al., 2005; Tanke & Leirer, 1994).

Patient education. Patient education sought to improve attendance and promote patient self-reliance (DuMontier et al., 2013; Childers et al., 2016; Clouse et al., 2015; Griffin, 1998; Martin et al., 2005; Tanke & Leirer, 1994). Healthcare providers agree that patients should be educated about keeping appointments so long as interventions are simple to follow and cost effective (Martin et al., 2005). Effective pedagogies utilized mailed materials such as booklets, videos of specific clinic functions, and telephone motivational interviewing techniques (DuMontier et al., 2013; Clouse et al., 2015; Griffin, 1998).

Patient attendance and medical treatment compliance increased with educational interventions (DuMontier et al., 2013; Clouse et al., 2015; Griffin, 1998; Liu et al., 2004). Clinics with outpatient procedures found that nurse led telephone calls prior to a patient procedure ensured increased patient understanding and higher attendance rates (Childers et al., 2016). Nurses negotiated with no-show patients to help them to understand the benefits of attending their appointment, while patients were able to express how they wished to be reminded of their appointments (DuMontier et al., 2013).

Patient preferences for appointment reminders. Appointment reminders to inform patients of an upcoming medical encounter were sent by telephone (automated or manual), SMS,

email, or written correspondences (reminder card, letter, postcard). Most reminder notifications were standardized and some lacked patient preferences or their ability to access technology (Finkelstein et al., 2013; Gauthier et al., 2012).

Patient technology usage can vary with instruments, applications, and levels of experience. Those individuals who are more likely to have had a positive experience using healthcare technology have also been successful at using online technologies from other industries such as banking (Finkelstein et al., 2013). The types of technology personally used was largely dependent upon patient age. All generations agreed on telephone technology as an appropriate reminder system except for generation Y (18-28 years) that overwhelmingly preferred SMS (Gauthier et al., 2012). Patients stated that staff manual telephone reminders felt personal and more effective than automated call systems (Parikh et al., 2010; Woods, 2011). Despite the preference for manual telephone notification surveyed patients were not able to recall if their telephone reminder was manual or automated (Parikh et al., 2010).

Reminder systems. Reminder systems vary in how and when they are delivered. The literature also varied on the number of reminders that are needed for effectiveness. According to Robotham et al., (2016), this issue was examined in a meta-analysis and found that multiple reminders had an average of 20.75% increase in attendance and a 4% no-show rate. Those results also compared other studies with only one reminder that resulted in a 7.16% increase in attendance and a 5.75% no-show. Their meta-analysis review was able to demonstrate the effectiveness of more than one patient reminder notification.

Appointment reminder timing was also important. While some studies proved that patients preferred receiving reminder notifications within 24 to 48 hours prior to the appointment, other research found it less beneficial (Gauthier et al., 2012). Automated

reminders were helpful if those calls were issued on the same day as the appointment, or if they required the patient to have to respond to the system by answering a question (Henry et al., 2012; Steiner et al., 2016; Tanke & Leirer, 1994). The literature also noted that a variety of times during the appointment lead time was beneficial (Crutchfield et al., 2017; Drewek et al., 2017; Shah et al., 2016). However, others could not demonstrate any effect on no-shows (Gauthier et al., 2012; Hasvold & Wootton, 2011; Henry et al., 2012). Appointment lead time was an important factor related to an increased chance of non-attendance. This was more likely to occur when appointments were established greater than 30 days in advance (Drewek et al., 2017).

Telephone reminders. Overwhelmingly, manual telephone reminders had the highest attendance rates as compared to automated calls (Childers et al., 2016; Clouse et al., 2015; Hasvold & Wootton, 2011; Henry et al., 2012; Parikh et al., 2010; Teo et al., 2017; Woods, 2011). One writer viewed staff led phone calls as being financially beneficial (Childers et al., 2016); while another felt this task was a burden to offices that did not have designated employees to do this job (Woods, 2011).

SMS and email reminders. Appointment text messages and emails showed similar results of no-shows as did telephone messages (Gurol-Urganci et al., 2013; Martini da Costa et al., 2009). Benefits of electronic messaging were cost effectiveness and efficiency when used in addition to telephone reminders (Hasvold & Wootton, 2011; Martini da Costa et al., 2009; Perron et al., 2013). It has been postulated that patient attendance would be higher if the text message systems required the patient to have to respond to the message, yet at this time there is no evidence to support this notion (Teo et al., 2017).

Written reminders. In reviewing the literature, the newer research tended to not support written notifications. Default notifications were written reminders used for pre-appointment

messages. The older literature revealed that default notifications were effective at getting patients to re-engage with their healthcare providers (Liu et al., 2014). These authors noted that default reminder letters had an increase in clinic attendance from 10% to 52%; and increased treatment compliance rates from 73% to 88%. The results from this study were not able to show a similar statistical result with patient attendance or compliance when take home cards or pre-appointment postcards were used. However, Saine and Baker (2003) did establish that letters used in this manner were more effective than postcards to encourage patients to re-establish care.

Conclusion of findings. The results of this literature review clearly show many facets of disregarded appointments. Communication to patients that utilized a multi-method approach did increase appointment attendance (Gurol-Urganci et al., 2013; Hasvold & Wootton, 2011; Liu et al., 2014; Martini da Costa et al., 2009; Parikh et al., 2010; Steiner et al., 2016). Default notification letters were effective at getting patients to re-engage with their healthcare system after missing an appointment (Liu et al., 2014; Saine & Baker, 2003). Multiple reminder notifications increased overall attendance (Crutchfield et al., 2017; Drewek et al., 2017; Shah et al., 2016). Patient surveys allowed their perceptions about appointment reminders to be known (Crutchfield & Kistler, 2017; Finkelstein et al., 2013; Gauthier et al., 2012; Griffin, 1998; Parikh et al., 2010). Nurse led communication procedures were effective in connecting with patients to ensure that appointments are either confirmed or cancelled (Childers et al., 2016; Clouse et al., 2015; Hasvold & Wootton, 2011; Shah et al., 2016; Teo et al., 2017; Woods, 2011). Lastly, patients who received digital notifications had fewer no-show rates (Gurol-Urganci et al., 2013; Martini da Costa et al., 2009; Robotham et al., 2016; Steiner et al., 2016)

Advantages and disadvantages of findings. Advantageous findings demonstrated how simple changes to communication could improve patient attendance rates. Additional

appointment reminder notifications were implemented easily and deemed cost effective. Default reminder letters not only are effective in prompting patients to re-establish care but could increase attendance. Surveys provide patients an opportunity to voice their satisfaction about how they wish to be reminded about medical appointments.

Disadvantages were also discovered. Many studies did not clearly define how to implement the proposed interventions. Another issue cited was a variety of barriers; yet, most studies did not offer a discussion on ways to address them. None of the findings presented an insight to budgeting for interventions. Lastly, this body of evidence did not clearly defined ways to educate staff to ensure an improvement in communication with patients regarding appointment attendance.

Utilization of findings in practice. Administrative interventions to decrease no-shows focused on improving the overall communication to patients about appointment reminders. EBI(s) strategies had to enhance or create communication between the clinic and the patients. Interventions relating to this QI project included (1) increasing the number of reminder notifications by adding a staff led telephone reminder 24 hours prior to the appointment, (2) utilizing a default reminder letter sent to patients who no-show, and (3) surveying patients to gain an understanding of their perspectives with reminder notifications.

Summary

The literature discussed in this review provides many different views on managing no-shows. The EBI(s) identified in the literature review are of varying quality that have generated positive changes related to patient attendance of medical appointments. The literature review's limitations were analyzed as to the relevance related to the scope of the current project. The

knowledge gained from this body of literature was the foundation for which this QI project was developed.

Chapter Three: Theory and Concept Model for Evidence-based Practice

A nursing theory was used to provide accountability and structure to guide this QI project. Theories are visualized in models that describe interactions between healthcare providers and clients as they work together to achieve wellness. Models provide a “road map” for progression. As in the problem of no-shows, theories and models help advanced practice nurses (APRNs) to visualize this problem and its effects related to staff, other patients, productivity, and access to care.

King’s theory of goal obtainment was chosen for this QI project based on the premise that nursing process is one that creates an influential exchange between all participants (Butts & Rich, 2015). The author’s framework places strong emphasis on communication that occurs between individuals, groups, and society (see Appendix D). This chapter will describe the use of King’s theory of goal obtainment and *The Model for Improvement* to implement this project.

Concept Analysis

The key concepts pertinent to this project were no-shows and patient reminder systems. As stated earlier, no-shows are individuals who miss medical appointments (Davies et al., 2016). Patient reminder systems provide communication regarding appointment information to patients (Liu et al., 2014). King’s conceptual system is applicable for identifying goals for individuals, groups, and communities within a variety of settings (King, 2007).

King’s theory is categorized into three different systems that are personal, interpersonal, and social (Killeen & King, 2007). Personal systems represent the individual or human being. “Perception, self, growth and development, time, and personal space” are concepts affiliated with individuals (Killeen & King, 2007, p. 53). In this system, perception is crucial to communication as it is the time when information is sorted and understood then stamped to a memory.

Interpersonal systems form a dyad or triad. Two individuals, such as the nurse and patient are considered a dyad. Three individuals are triads i.e., the provider, nurse, and patient.

Interpersonal systems concepts are “role, communication, interaction, transaction, and stress” (Killeen & King, 2007, p. 53). Social systems are larger systems that include family, educational, or healthcare entities. Those concepts are found in the premise of the institution’s autonomy, strength, and jurisdiction (Killeen & King, 2007).

Theoretical Framework

King’s conceptual system is knit together by communication. The art of communication becomes the focal point that ties together individual interactions within all types of environments (Killeen & King, 2007). King’s theory has several assumptions that pertain to the patient/client as human beings. It states that individuals are reactive, controlling, action-oriented and time-oriented beings (Butts & Rich, 2015). In addition, it postulated that human beings have autonomy for all commitments that affect their wellbeing (Butts & Rich, 2015).

Relationships are formed within interpersonal systems. As a dyad, the nurse and the client must establish mutual respect that allows for open communication of everyone’s perception of health. Perception and influence are transferrable within the dyad and is motivated by all participants’ goals, needs, and values (Butts & Rich, 2015). As the dyad relationship grows it is the responsibility of the health care provider to educate patients so that the patient can make informed decisions concerning their health (Butts & Rich, 2015).

The social system of King’s conceptual system is the integration of health within a global society. Groups and systems incorporate technology to expand the relationship borders. Specialists that are organized and housed into hospitals include individualized providers, pharmacies, home health agencies, or community health centers (Bodenheimer & Grumbach,

2007). These professionals' partner with the patient based upon the individual's goals. In addition, these systems provide their brand of technology that can also be utilized at varying degrees to help meet patient's needs.

The theory of goal obtainment includes a model of transactions that illustrates a dyad, patient and provider, along with the line of transactions that occur in the relationship (see Appendix E). This design demonstrates the equal relationship between provider (nurse) and the patient that is centered on their perceptions leading to judgment, then actions. Once an action has occurred there is a reaction that prompts an interaction. Interactions then produce a transaction or satisfaction of a goal, followed by a feedback loop (King, 1997). The feedback loop keeps the relationship from becoming stagnant (Killeen & King, 2007). Goal transactions are possible when all participants agree (Killeen & King, 2007).

Application to practice change. King's theory of goal obtainment and model of transactions are well suited for this project's foundational framework. Its interpersonal system provides nurses and patients an opportunity to communicate, recognize goals, and design outcomes (Panozzo, 2018). The model of nurse-patient transaction establishes a linear progression to move through the conceptual stages towards a final transaction.

All aspects of the theory, personal, interpersonal, and social systems, will be utilized in the project. Individuals within the personal system are the no-shows and non-no-show patients. Persons identified as no-shows will have the opportunity to receive feedback regarding how their behavior affects the clinic. In response, these individuals can decide how they will react to this information. Non-no-show patients will have the opportunity to share their feelings about this clinic's notification practices.

Interpersonal dyads will vary but include the medical office assistant and patient; or, medical office assistant and APRN. Interaction between these groups will have different purposes. For example, the goal between the APRN and the medical office assistant is to educate about the no-show problem and instruct on implementation of the EBIs. Whereas the goal between the medical office assistant, no-show patient, and non-no-show patient will be more informative related to needs. Information transferred here will be passed along through the no-show letter, reminder phone call, and instructions given regarding the survey tool.

The specialty groups within the clinic and its network affiliations support the social systems. The affiliate's IT professionals will demonstrate the use of the existing technology to produce the relevant no-show letter. The APRN will incorporate technology driven tools for data collection. In reverse, all patients will have an opportunity to share their feelings about this clinic's use of technology with appointment reminders and deem whether the current systems were affective.

EBP Change Theory

To organize and direct this project, the *Model for Improvement* and its Plan-Do-Study-Act (PDSA) framework was selected based on its ease of use and clearly stated objectives throughout each phase. A similar model, Plan-Do-Check-Act was created by Walter Shewhart with check substituting for study, was used as a tool to guide performance-improvement projects in mainstream industry (Woods, 2011). The models are similar in that they both allow a way to test an intervention. The desired outcome for this QI project was to see a decrease in patient no-shows that would allow for better utilization of this medical office's time and resources after implementation of the process change.

In the PDSA framework, the *Plan* phase is spent gathering evidence about the proposed problem. Literature is examined to define the problem's aspects, parameters, and solutions. The

Do phase commences the project's interventions. Barriers or problems are identified and recorded for later analysis. The *Study* phase is associated with the recognition of success or failure of the implemented interventions. Data is synthesized to determine if the desired change occurred or if future changes are needed (Woods, 2011). The *Act* phase guides the direction of the project based on needed changes or for future learning (Institute for Healthcare Improvement, n.d).

Application to practice change. The initial PDSA cycle started with a Plan phase centered on the discovery of the project sites no-show problem. The *Model for Improvement* was used to scrutinize the literature about no-shows. The plan was to identify EBI's to deter no-show behaviors that would be feasible, hopefully producing an increase in patient attendance.

The literature review during the Plan phase demonstrated that there were many ways to deter no-show behavior; yet not all defined interventions were meaningful to the circumstances of this clinic's no-show problem. Some interventions could not be implemented within a small amount of time as was needed. Others required systems changes with scheduling techniques that were not desired by clinic management. Those interventions with potential had to be cost effective and easy to integrate into the current workflow of this medical office.

The next step in executing this plan was to determine the exact population that the project would involve. It was decided that adult no-shows would be the dominant group. A pre-defined time needed to be identified to assess if the interventions worked. This timeframe needed to last long enough for data to be collected that would be compared to a segment of the previous year's no-show records. Once these details were determined it was time to progress to the *Do* phase.

The *Do* phase centered around the implementation of the project interventions. It was decided that three EBIs would be feasible which included (1) development and distribution of a

no-show letter, (2) an additional appointment notification by staff one day prior to the scheduled appointment, and (3) administration of a patient satisfaction survey regarding the present appointment reminder systems. The interventions were all implemented simultaneously during the defined time.

Data was also collected during the Do phase period. This data would show if there was a decrease in no-show behavior and define some additional information that could be used to design other interventions for future studies. The daily progress of the project included questioning whether the project was working as it was intended. These observations led to the Study phase.

The Study phase focused on the effectiveness of the interventions. The data collected was analyzed weekly by the APRN for trends, barriers, or disturbances. Trends were noted but not discussed or altered. Preconceived barriers included lack of patient demographic information needed for the no-show letter, lack of physical items (such as running out of the survey tool), and integration of staff unfamiliar with the project and its objectives. The evaluation tools used consisted of Excel spread sheets that the office staff would use daily. These tools not only collected quantitative data but also allowed for qualitative information to be extracted. The qualitative data helped to explain why a process was not done, for example why a letter was not mailed or why a patient was not called. This information was labeled as disturbances and was examined weekly to determine if a change was needed to the intervention process.

The Act phase allowed the APRN to intervene during the project phases when needed based on what was being learned during the Do phase. As mentioned previously, if letters were not being mailed then a change was developed based on the circumstances behind the problem. This might include an additional information session on the intervention process, or it may

warrant a total change in the overall mail process. Another issue could be related to phone calls not being made in a timely manner. Understanding the identified constraints allowed the APRN to change processes as needed.

At the end of the project, data was compiled to determine the effectiveness of all interventions. Interventions that helped to decrease the patient no-show rates were presented to clinic management and the physicians network management to determine if they might help other offices within the system with similar no-show problems. Those interventions that did not work were examined to determine if there was a reason for their failure and the possibility of them being able to work in other clinic environments. Data from the survey provided this clinic new opportunities to improve the overall appointment process and ways for future changes to enhance patient satisfaction.

Summary

King's theory of goal obtainment and the PDSA cycle provided a supportive framework for the development of EBIs related to decreasing no-shows. The focus of these interventions was to increase the number of reminder notifications, determine the current patient populations' satisfactions with office reminder technology, and to communicate with all patients who missed their medical appointment during the intervention phase. Data collected from the interventions was studied and used during the implementation process or for future studies related to this topic at this location.

Chapter Four: Pre-implementation Planning

The pre-implementation phase began when the no show problem was identified. This problem prompted the development of the project proposal, proposed changes, and project details. The office manager, project champion, and project leader communicated regularly about the desired outcomes and potential barriers. Through this open collaboration, participants worked on arrangements necessary for the project presentation to the organization's institutional review board (IRB). Project approval was granted by the project site IRB, which allowed project implementation and accepted the project tools.

Project Purpose

The purpose of the project was to develop strategies that would decrease this primary care clinic's patient no-show rate. The plan suggested was to change this office's procedures for communicating with no-shows and implement a different appointment reminder. Office procedural changes allowed the clinic staff and no-show patients to exchange perspectives of this issue. Clinic interventions provided the staff with new awareness of the problem and gave them an opportunity to voice their opinions about possible solutions. Patients who participated in the survey voluntarily shared their feelings on appointment reminders with the hope of allowing the clinic staff to gain new perspective on this facet of care. No-show patients were accountable for their absenteeism without detriment or financial loss. Lastly, the clinic collected specific data related to their no-show problem and tested EBIs for attendance changes.

Project Management

On site meetings occurred frequently between office staff, providers, information systems personnel, and the project leader with discussions related to the concept of no-shows and its various meanings. Stakeholders gave their perception of the no-show problem and hypothesized

on ways to remedy it. A separate meeting occurred with the physician network director/project champion to discuss the organizational culture and the no-show problem from a network perspective. This collaboration permitted opportunities for uncertainties to be identified and explored.

Project management consisted of three individuals. The project author assumed the role of project leader and was responsible for initiating approval for the (1) project site, (2) EBIs, (3) data collection tools, (4) staff educational sessions, and (5) timeline. The clinic's office manager coordinated all on-site training dates for staff, provided needed statistical information that was used in the final analysis, and daily supported all the EBIs during the implementation phase. The project champion acted as a resource to ensure that the project goals were in line with those of the organization. After many consultations, the project was granted support from the clinic manager in the letter of recognition (see Appendix F).

Organizational readiness for change. This site welcomed the project on the basis that the interventions be directed at enhancing communication with all patients, not just no-show clients. The clinic management team felt a definite need for this project due to their volume of no-shows and desired to test new communication techniques. They also wanted insight into their patient population's satisfaction of the organizations scheduling and appointment reminder procedures. The survey tool was felt to be an appropriate way to measure this information. Manual phone calls made by staff as appointment reminders had been discussed prior to the introduction of this project, yet leadership, timing, and resources had initially been barriers to this change. In addition, the clinic had sent letters to no-show patients with the request that those patients contact the office within 30 days to reschedule. Clinic management questioned the 30-

day extension and revealed that no data had been collected on this process to determine the effectiveness of that practice.

Interventions that were vetoed in early discussions were those that consisted of changing their appointment scheduling processes. Two scheduling options were discussed, open access and double-booking practices. Both scheduling procedures were impractical for several reasons as were all other scheduling techniques that eliminated the clinic's administration. The clinic staff felt that double-booking would potentially cause greater patient delays due to not being able to predict the potential number of no-show patients; while open access to the scheduling system was not feasible throughout the entire health system network. The network contended that each provider should have full control over their scheduling process without outside interference. All providers echoed this opinion. The rationale for this constraint was that these scheduling procedures would be difficult to navigate and manage.

After impractical ideas were eliminated, others were explored that supported the main goal of decreasing patient no-shows. Ideas that met approval were those that would be realistic for the staff to implement into the natural daily workflow. Staff led manual telephone call reminders were eagerly accepted after recognition of research statistics that showed the effectiveness of this intervention. Staff barriers that had been proposed were no longer applicable once the office had an appropriate number of administrative employees hired prior to the trial phase. Additional interventions accepted were to make a slight change to the no-show absentee letter, and a patient satisfaction survey.

The primary goal of the project was to improve the no-show rates. This achievement allowed greater continuity of care and better financial outcomes for this clinic. Data collected that was related to the procedural changes was identified as a secondary project goal. This

information had never been collected or tracked about aspects of a no-show occurrence. The project design included this aspect which made it more attractive to the clinic leadership.

Inter-professional collaboration. The project required the support of the office manager, medical assistant staff, information technology employees and on rare occasions the providers. Each team had specific roles and responsibilities. The office manager managed the daily function of the project and acted as the liaison between all other teammates. These functions included the oversight of the medical office staff who performed manual phone calls, disbursement of the survey, and production of the no-show letter. The same individual also communicated with the project leader related to project progression, and the barriers or limitations that had occurred each week during a weekly on site or virtual meeting.

The project site receptionist had specific project responsibilities in which they, (1) explained and distributed the patient satisfaction surveys, (2) performed the manual appointment reminder phone calls, and (3) handled the no-show letters when needed. These tasks involved several different staff members based on the patient census of that day. Individuals appointed with intervention tasks also documented the data that related to their assigned jobs.

Clinical medical assistants collected the completed patient surveys. Those employees had fewer project responsibilities as did the providers. On occasions when time allowed, the clinic staff could assist the administration group or vice versa. All medical assistants communicated any problems or barriers to the office manager related to all interventions.

The information technology (IT) staff collaborated extensively with all other professional groups. Initially they assisted the project leader with needed information about the project sites software and internet platforms capabilities. Their knowledge was instrumental in that they explained the feasibility of the desired interventions in coordination with the technology's

capability or with the network's systems practices. Prior to the implementation phase the IT staff ensured that the no-show letter template was able to be updated to reflect the proposed intervention. Once their analysis was completed, they assisted the project leader as needed.

The providers gave the initial idea for the project but held the least responsibility of all other professionals. They were present at meetings where decisions were needed regarding the design of the interventions. The office manager was available daily to discuss any project concerns. No provider was involved with the data collection process.

Risk management assessment. A strength, weakness, opportunities, and threats (SWOT) analysis was completed to demonstrate the no-show problem to the clinic site (see Appendix G). This process examined the clinic structures, employees, and current scheduling practices. The outcomes were used to support the process change for deterring no-show appointments.

Strengths. The site had several strengths that were chiefly centered around the staff. The greatest strength was that the office was a small clinic with a diverse staff. A small clinic allowed the staff to understand how to work efficiently together. Secondly, this site was supported by a larger organization that assisted with daily operational needs. Third, patients had access to a variety of services that include acute care, chronic condition management, wellness care, and weight loss clinics. Appointments reminders were delivered using a multimethod approach. Lastly, clinic management worked diligently to provide a variety of methods to assure access to healthcare for their patients

Weakness. This clinic was guided by the organizational belief that providers should control the scheduling which resulted in occasional limitation to provider access. This attitude limited the ability for newer, more effective scheduling technologies to be put into practice.

Advanced scheduling practices that are more flexible and open to outside manipulation, have shown decreased no-show rates (Bundy, Randolph, Murray, Anderson, & Margolis, 2005).

Patients within this clinical setting had to conform to conventional ways of making appointments, which may be viewed as being outdated and inconvenient. The reluctance to institute newer forms of clinic scheduling has created an internal barrier for patients and accessing healthcare services.

A second weakness was that this office knew very little about their no-show population. They had never collected demographic data or data relating to the appointment types most missed. The data that had been collected previously did not attempt to understand how the present scheduling methods had affected their patient population.

Opportunities. This project allowed for opportunities to gather detailed information about patient no-show behaviors that included (1) missed day of the week, (2) type of appointments, (3) time, and (4) provider scheduled. Knowledge gathered from this data presented opportunities for changes to office practices and future scheduling. This data also provided insight into what appointments had not received any type of appointment notifications. The survey tool allowed the clinic to understand which modes of reminders were most desired. Demographics from the survey illustrated various population trends and association of satisfaction. Lastly, there were needed opportunities to connect with this patient population about this topic.

Threats. Staff changes in this clinic over the last year was one of the largest threats. Additional medical office assistants were merged with this office's staff in the winter prior to implementation due to a reorganization. This instability had a detrimental effect on the morale of the former office staff. The uncertainty of the merged group initially caused some confusion

and resistance. Furthermore, staff from the merger had a difficult time with project participation; those employees focused on acclimating to the new providers and were overwhelmed due to the stress of the change. Other issues related to staff resistance was the perception that additional work was being added to their current duties.

Besides staffing issues, there was no financial support for this project. The project was not costly, however there were office supplies that were utilized daily that the project site had to provide. Time posed a threat to participants with completing the survey tool due to being ushered back to the exam room quickly after check-in and having other forms to complete. Project technology and data base tools used for data collection potentially could have failed during the implementation phase. Lastly, the office staff felt that there would not be enough time to be educated on the new procedures and lacked initiative to self-educate.

Organizational approval process. The project sought to make changes to clinic processes related to patient appointment communications. The project site agreed to participate in this project after the proposal was discussed between the office manager and project leader. The proposal illustrated that the EBIs posed no more than minimal risks to participants. Those risks dictated that the project would have to meet approval by the clinic's organizations internal review board (IRB). Staff at the clinic site verbalized this requirement early in the project's conception.

Information technology. The project site used current software technology for patient appointment scheduling. The clinic also utilized an EHR that included a (1) functioning patient portal with email capability, (2) computer-synced telephone and SMS reminder systems, (3) appointment scheduling, and (4) billing managers. Their technology brands were supported by a designated organizational (IT) staff. Those individuals assisted with the project in several ways

as was previously discussed. Project data was collected with the use of an Excel workbook with six worksheets for (1) each month's no-shows (day, date, time of appointment, provider scheduled); (2) completed survey; (3) reminder phone calls conducted; and (4) mailed no-show letters. Staff was educated on the use of the workbook prior to implementation and was able to demonstrate competency.

Cost Analysis of Materials Needed for Project

The project budget was estimated at a cost of \$655.00 dollars. Items within the budget were categorized as food expenses or office supplies. Office supplies were materials needed for the survey that included (1) paper, (2) ink, (3) collection and storage boxes, (3) clipboards, and (4) pens. The missed appointment letter resources were not included in the budget. Those materials along with expenses for letterhead, stationary, and postage were absorbed by the project site.

Food associated budget line items was used during meetings and training sessions. This included one private luncheon with the office manager and two lunch and learn session with the office staff. The first staff meeting was to discuss the proposal, process changes, and educate the clinic staff about the need for the project. The second meeting occurred after the completion of the interventions to discuss the outcomes, gaps, discoveries, and analysis. Budget line items were established in an Excel spreadsheet with two miscellaneous blank lines for additional unplanned expenses (see Appendix H).

Plans for Institutional Review Board Approval

The project leader acquired IRB approval from both the site and the university. Initially, project approval entailed discussing the proposal with the secretary of the IRB committee. Those discussions occurred via email with the secretary who granted approval to present the

project proposal at the IRB committee meeting. The project was presented several months before proposed implementation and was met with interest and one concern.

The concern raised was for the welfare of the patients who may be identified as no-shows. The committee felt that this label may cause wide spread detriment to those individuals. The project leader explained that no identifiable data would be collected, only demographics included in the survey. Further, it was explained that only the office administrative staff had access to patient identifiable information used when composing a no-show letter or calling an appointment reminder. Patient identifiable information was not used in any reports or publications. Once the committee understood that the project would cause no more than minimal harm, they all agreed with a 100% vote. The committee required no additional documents or follow-up meetings prior to implementation or after completion (see Appendix I). Lastly, the project was deemed not human research and did not require a full review by the East Carolina University IRB committee (see Appendix J).

Plan for Project Evaluation

Demographics. Patient demographic information was collected to describe the patient population involved with the project. According to Kheirkhah et al., (2016) populations most associated with the no-show behavior in primary care clinics were middle-aged and senior adult females. For this reason, age and gender was collected in the patient satisfaction survey tool (see Appendix K). Age and gender data were also beneficial to establish preferences for how groups wished to receive appointment reminders. Demographic data was presented in a bar graph table that displayed the surveys sample characteristics used in the final analysis report and presentation.

Outcome measurement number one. The first project measured outcome was patient attendance. The project leader and clinic had hoped that the number of no-shows would be lower during the intervention phase (2 months) as compared to the data for no-shows from months prior to implementation. A lower no-show rate correlated with increased patient access to medical care and clinic efficiency. This measure constituted the overall goal of each of the supporting EBIs.

Evaluation tool. An Excel workbook developed for this project was used to collect all project data. The workbook housed four worksheets of which two were designated for documenting patient no-shows. Information was gathered from an 8-week time frame that included (1) provider associated with the no-show, (2) day of the week for the missed appointments, (3) appointment types from five different categories, (4) total for missed appointments per provider, and (5) no-show total occurrences (see Appendix L).

Data analysis. The project data was also analyzed with the use of Excel graphs and charts. This software product was deemed acceptable by QI project standards. The final composition of Excel charts and graphs allowed the reader to easily see the results for this primary outcome. The project leader compiled all end analysis reporting and provided this information to the clinic.

Outcome measurement number two. The second outcome measure evaluated if the staff led manual telephone reminder made 24 hours ahead of the appointment helped decrease the no-show rate. This measure determined the efficacy of the staff manual appointment reminder phone call in addition to the automated reminder that was given 48 hours in advance. It was postulated that a decreased no-show rate would occur if patients confirmed, cancelled, or rescheduled their appointments. Patients who canceled or rescheduled appointments were

removed from the appointment schedule for the following day. This helped to eliminate no-shows and allowed for open availability. Patients were more likely to attend if they were reminded closer to the time of the appointment (Crutchfield et al., 2017; Drewek et al., 2017; Shah et al., 2016).

Evaluation tool. The Excel workbook had a designated worksheet used to collect data about the staff manual phone call. This worksheet documented the number of preceding appointments and the number of actual phone calls made. This data also included qualitative data for occasions when no phone calls occurred. The quantitative data included the (1) number of appointments scheduled, (2) number of phone calls made, and (3) the action taken from one of four responses (see Appendix M).

Data analysis. Excel was used for analysis of this data into statistical charts and graphs. The qualitative data allowed the discovery of staff problems related to this task and was also assimilated into a statistical chart that was provided to the project site. Statistics from this outcome were not illustrated but were discussed in the body of the QI manuscript.

Outcome measurement number three. The third outcome measured this patient populations satisfaction of the current appointment reminder systems. The survey collected demographic data with responses that were both quantitative and qualitative. Quantitative questions produced data from multiple choice, yes/no, and Likert scale responses. Qualitative questions allowed participants to list the type of appointment they had come to; and give input about the scheduling process. Data from the survey created a patient satisfaction score that would be used to measure this populations overall satisfaction.

Evaluation tool. The last designated worksheet from the Excel workbook was used to collect this data. Staff collected all surveys daily but did no analysis (see Appendix N). An

additional Excel spreadsheet was used to examine the survey answers (see Appendix O). This spreadsheet was only handled by the project leader. The rationale for this was to allow for complete privacy.

Data analysis. Again, Excel was used to move the initial data from the both worksheets into statistical charts and graphs. This information display was both quantitative and qualitative. The quantitative chart resulted with demographics, types of appointment reminders, a satisfaction score; whereas the qualitative chart showed patient input about ways to improve this process. Demographic information was included in the final analysis to describe the sites population; while all other data was used in the final manuscript. The completed analysis of all data was provided to the clinic site for further investigation.

Data management. Data was collected and stored in the Excel workbook at the project site on two different work stations. Administrative staff had full access to the entire workbook. The workbook was password protected so that no one outside of the project could capture or utilize the data. Bi-weekly, the project lead visited the site to discuss any problems related to technology. Workbook data collected was sent electronically to the project leader weekly and maintained at the project site through the end of the intervention phase. The final analysis of the data occurred within one month of the project completion. All project workbook data sheets were stored digitally for six months following the end of the project.

Surveys were coded by date of occurrences with no names or other personal information being collected. Patient completed their surveys then gave them to the clinical staff who then handed to the office manager for storage. Surveys were batched weekly and stored in the office manager's office in a locked space. The project leader weekly tallied and recorded the data

responses. Once the data was compiled the paper surveys were disposed of in a shredder bin located at the project site.

Summary

The pre-implementation phase was an important stage that established project support. This support developed after rapport was built within the project site clinic, and then with the IRB committee that led to project approval. Project approval signified that the site was ready to change their office procedures related to communicating with their patients to prevent no-show appointments.

The project SWOT analysis illustrated that the clinic site had many strengths that primarily related to their staff. These strengths were essential for a success during the implementation phase of the project. Their weakness highlighted potential opportunities that were gained from patient input for satisfaction of the scheduling and reminder processes. Finally, threats to this project were limited to a knowledge deficit among the participating staff. Those threats were addressed by the project leader who provided appropriate education and support throughout the implementation phase.

Chapter Five: Implementation Process

The project was implemented during an eight-week period. This was enough time to collect data on no-show appointments and patient satisfaction regarding appointment scheduling. This short period also allowed staff who made the manual reminder phone calls enough time to adjust to this task and evaluate the effectiveness of it. Data collected throughout the eight-weeks was not analyzed until completion of the implementation phase.

Setting

The setting for the implementation phase was within a suburban primary care clinic located in North Carolina that had a substantial problem with patient no-shows. The project site belonged to a larger medical system in that geographical area. This system consisted of one acute care hospital and multiple outpatient primary care and specialty clinics. Patient no-shows was a universal problem within this system (R. Scott, personal communication, July 03, 2018). At the project site, patients were seen Monday through Friday from 7:30 am to 5:00 pm. The clinic was closed on nationally recognized holidays. The site did not offer any late evening appointments. Three providers at this site cared for approximately 15-30 patients daily for a variety of visits.

Participants

The patient population included all genders along with a variety of ages and races. Participants for the three interventions were adults over the age of 18. Specifically, this included patient no-shows that received a no-show letter, adult patients who received the 24-hour manual phone call reminder, and patients who took the survey in the clinic. The patient no-shows excluded from the no-show letter were patients who had separated from the clinic services or hospitalized, yet those appointments had not been removed from the schedule. Patients exempt

from the manual phone call reminders had outdated contact information. Lastly, survey participants were excluded if they did not wish to complete the survey tool.

Recruitment

There was no recruitment of participants at any time during this QI project. Research was never conducted, instead what was implemented was a change to the standard practice. The missed appointment letter was sent only to patients who failed to come to their appointment without a notice. All adult patients scheduled received the reminder phone call prior to their appointment. The satisfaction survey was handed out to all adult patients during appointment check-in, however, patients were not required to complete the survey. Patients who chose not to complete the survey received no penalty or change in care.

Implementation Process

Many preparations occurred prior to the initial implementation date. A time line was used to organize the project and establish dates for educational training, data collection, and project length of time. This illustration helped to provide an understanding for staff involvement. In addition to the project time line, final preparations were needed. Those preparations included gathering office supplies (clipboards, pens, survey copies, and storage units) and organizing the catered luncheon. A meeting was held with the administrative staff to go over the project logistics and the time line. This was followed by a training luncheon session with the staff about their roles and specifics of the interventions.

Missed appointment letter. The administrative office staff was educated about the contents of the no-show letter. This document stated the date of the missed appointment and requested that the patient contact the office immediately to re-schedule with their provider. It was stored into Allscripts PM patient appointment software, where it would automatically be

sent once a no-show occurred. The construction of this form letter required the office staff to applying patient specific information and the no-show date.

Staff were educated prior to the implementation of the missed appointment letter. This education occurred during a one-hour lunch & learn session and explained the composure of the no-show letter and the no-show Excel data collection tool. The training also allowed ample time for an explanation of the project purpose and all other variables. The no-show letter demonstration illustrated letter generation, mailing, and who were eligible to receive it. The no-show Excel worksheet was also demonstrated during this meeting. Clinic staff was already familiar with the creation of the no-show letter; however, the worksheet was a new tool.

Additional reminder notification. There were no changes to the current appointment reminder message system. Patients continued to be informed of their up-coming appointment date and time 48-hours prior. The same messaging system continued to allow patients to cancel their appointment from the delivery prompt (telephone, SMS, or email). The added intervention was the staff manual phone call 24-hours prior to the appointment. This task had not been done prior to the project; staff needed an understanding of the intervention and their role with it. Staff were educated on the use of a standardized script for the phone call, and the process if there was no answer. The manual phone call was guided by an algorithm that was also discussed (see Appendix P).

Reminder notification survey. The seven-question survey tool asked all patients over the age of 18 to rate their satisfaction of appointment reminders (telephone, SMS, email, or no reminder received). Surveys were handed out along with other clinic documents during the patient check-in process. Administrative staff explained the purpose of the survey and informed patients that participation was strictly voluntary and confidential. Patients were asked to

complete the survey either in the waiting room or while in the exam room. Surveys completed and other clinic documents were given to the clinical assistant who then passed those documents back to the office manager. The project leader collected all surveys bi-weekly.

The specifics of the survey were discussed at the pre-implementation luncheon. This time allowed for an explanation of all variables such as who would pass out the survey, who would collect it, and where would the completed forms be stored. Necessary supplies were gathered in advanced and stored in a designated area at the front desk that was shown during the meeting. Finally, the office staff were given a script to use for introducing the survey to the patient prior to consent and a response for why the information was being collected (see Appendix Q). Patients were asked to not provide any identifiable information only respond to the questions.

Plan Variation

The implementation stage found five specific variations from the original plan. The first variation was related to the no-show data worksheet. The no-show worksheet's original design did not allow for multiple no-shows to be recorded per provider daily. This was noticed during the staff education training session and had to be corrected prior to the project start date. A new Excel worksheet was established that would perform this action.

The second variation related to the no-show letter. Prior to the project this office had been using a no-show letter template that requested the no-show patient to contact the office within 30 days. It had been proposed that the verbiage be changed to contacting the office immediately instead of the 30-day mark. This change was found to not work along with stating additional information about a consequence of no response leading to possible discharge from

the clinic services because of the rigidity of the template. Therefore, the verbiage of the original form letter did not change as had been proposed.

The third variation related to the collection of the completed surveys. The original design of the intervention included locked drop boxes located in the exam rooms. Patients were to deposit their surveys in those designated boxes, however the boxes were found to be too small to handle the volume of daily surveys. The clinic manager decided that patients would hand their surveys to the clinic staff while they were being asked to fill out additional forms that were unrelated to the project. All surveys were then given to the office manager who maintained them in a separate folder located in a cabinet within a locked office until being picked up by the project leader.

The fourth variation was in the number of times the project leader visited the project site. Originally the project leader had discussed meeting weekly, yet this was not possible due to competing schedules. Weekly meetings were changed to bi-weekly without any detriment to the project site or overall project implementation phase. The office manager and project leader continued weekly emails on the project's progress. Those emails also offered an opportunity to discuss any problems or issues.

The final variation related to question number five on the survey tool. This question was designed as a Likert scale question that asked the participants to rate their satisfaction of the appointment reminder that they had received prior to taking the survey. The original response design included (1) very dissatisfied, (2) dissatisfied, (3) neutral, (4) satisfied, and (5) very satisfied. This response composition concerned the office manager who felt that the participants were not reading the question closely and that the responses may be skewed. The responses to this question were reordered to read as (1) very satisfied, (2) satisfied, (3) neutral, (4)

dissatisfied, and (5) very dissatisfied. This response change occurring during week three of the implementation phase. Prior to this change staff had highlighted this question and asked the patients to read the responses carefully.

Summary

The implementation phase started with detailed planning and a supportive time line. Office staff who administered the interventions were trained successfully and were able to complete the proposed tasks. Staff performed all interventions and collected all data with the use of the project tools. The project data was then analyzed by the project leader to determine if the interventions had made any significant impact to the patient no-show problem within the clinic site.

Chapter Six: Evaluation of the Practice Change Initiative

The project implementation/data collection phase ended after eight weeks. Data collected onsite included Excel worksheets were transferred electronically to the project leader to be disseminated into a final report. Additionally, the last batch of completed surveys was gathered from the clinic and recorded. All data was analyzed to determine if the communication changes regarding appointment reminders had made a positive impact at decreasing patient no-shows in this primary care clinic.

Participant Demographics

Demographic data was only collected via the patient appointment reminder survey. This data consisted of age and gender only; no confidential information was gathered. The demographic results were used to describe the population and to better understand aspects of the adults predominately seen at this clinic. Demographic survey questions consisted of age group and gender. No other demographic data was collected on no-show patients or with the mailing of the no-show letter. It was felt that collecting this information may have had the potential to compromise an individual's identity or negatively label them as a stereotype (Perron et al., 2013).

The final analysis showed that there were 391 survey participants. Only 389 surveys were used due to two participants being under the age of 18 years. Of the 389 surveys collected, 102 were males and 287 were females. Participant age data results was broken into five categories which were ages (1) 18-27, (2) 28-38, (3) 39-49, (4) 50-59, and (5) 60 or greater (see Figure R1 of Appendix R).

Intended Outcome(s)

Outcome measure number one determined if patient attendance had improved during the intervention phase. The project site had 801 scheduled appointments during the eight-week implementation phase with 28 no-shows (0.03%) amongst three providers. This data was compared to the number of no-shows from the pre-intervention phase 8-week period and was found to be significantly lower. The pre-implementation phase averaged 73 no-shows for approximately 1050 appointments (0.07%).

Data was then compared for the three providers who had been at the clinic during the last year. Information assessed both the pre and post intervention phases (see Figure R2 of Appendix R). This data also demonstrated that the project intervention had decreased each provider's individual no-show rates respectively and the overall clinic no-show rate.

Outcome measure number two evaluated the significance of a staff led telephone call as a patient reminder 24 hours leading to the appointment. Clinic staff documented 777 reminder phone calls prior to the upcoming appointments out of 801 scheduled appointments. The data discrepancy of 24 was due to either patient phone numbers not being correct or patients having same day appointments. Of the 777-reminder phone calls 514 recipients confirmed their appointments. The remaining 208 phone calls resulted in messages left on secured answering machines. In addition, 21 appointments were rescheduled for a later date. Those 21 rescheduled appointments allowed the staff to remove those appointments from the next day's schedule.

Outcome number three evaluated patient satisfaction of the current reminder system. This process allowed the clinic to identify demographics, types of unnotified appointment encounters (lab work, physical exam, etc.), how patients received their notifications, feelings

about manual phone calls, and an opportunity to voice their opinions. The demographic data, as discussed earlier showed that this clinic had seen more females over the age of 60.

Findings

The results of these outcomes led to various findings. Outcome measure number one had implications to impact this clinic's finances as well a social implication. The significance of this outcome measure was in the realization that the project intervention had made a significant impact on the no-show rate for this clinic and for the participating providers. Of all outcome measures this one was the source of the project's foundation. Its impact had far reaching effects and proved to be an easy change for this office to adapt into its office procedures in the future.

Revenues were gained as a result of the decrease in patient no-shows going from 74 lost appointments down to 28. The difference in the revenue from the 2008 cost was \$9,016; compared to the 2018 inflated rate of \$10,500. Socially, outcome measure number one's decrease in no-shows also meant that there was more provider availability, meeting one of the social domains of Healthy People 2020 (n.d.). Provider availability and distribution of quality care also meets the aim of accountable care organizations and patient-centered medical homes (Shah et al., 2016). Appointment availability occurred due to the number of rescheduled appointments, leaving same day appointments open.

The second outcome measure proved that having a staff member make manual phone call reminders was effective at alleviating no-shows. The results of this outcome supported research based solely on the nurse led manual phone call reminder intervention. This clinic was able to use the assistance of an office intern to perform this task easily without additional burden to current staff. The time needed for this daily task proved to be less than three hours per day which supported the idea that this job could be performed as a part-time role.

Outcome measure number two's data clearly showed the significant number of appointments that were rescheduled. Rescheduled appointments were removed from the next day's schedule. This transfer allowed for additional provider availability that was useable for same day appointments. One other added value was that the rescheduled appointments did not count toward the no-show rates. This too allowed for an improvement to the overall non-attendance rates.

The third outcome measure provided patient information based on the appointment reminder survey that had previously not been known to this clinic. Demographic information demonstrated that most of the adult patients being seen at this clinic were female over the age of 60. One significant result was in discovering that patients preferred the use of text messages, but they were not receiving them. It is unclear as to why this practice was not being employed. Question number four's data for the unnotified appointment appeared to be skewed. It looked as though some participants misunderstood the meaning of the question and replied unnecessarily. This was evident in that 37 patients stated that they did not receive a notification yet there were 169 resulted types of unnotified appointments. The data simply did not add up and this information was not discussed further.

The significance of the survey data was that it demonstrated mixed responses. Overall satisfaction rated at 76% with very satisfied and satisfied scores combined (see Figure R3 of Appendix R). Most patients (85%) received their appointment notification with phone calls; yet many responses to question 7 stated that they desired to have text messages (44%). Text messaging appointment reminders was not a new technology for this clinic, it had been instated for some years. The reason for this discrepancy is unclear and participants failed to give information as to their reasoning for this. The additional manual phone call was deemed helpful

to 62% of the patients who felt that this new method of communication did help them to remember to come to their appointment.

Summary

The project outcomes showed an increase in patient attendance. The data revealed that a change in communication enhanced this patient population ability to recall appointment dates and times which led to lesser no-shows. Clinic revenue was gained during the intervention phase of this project. Patients shared their feelings about the present reminder systems and rated this system overall as being satisfactory. The continuation of these communication changes had implications for nursing that was defined through an advanced leadership role.

Chapter Seven: Implications for Nursing Practice

Chapter seven applied the eight Doctor of Nursing Practice (DNP) Essentials to the relevance of this QI project. The process of relating these Essentials ensured that this project was developed based on scientific practice and knowledge. APRNs must practice and possess this new skill set while incorporating these Essentials into the areas for which they are trained.

Practice Implications

The DNP degree was built upon eight core Essentials developed by American Association of Colleges of Nursing. These Essentials consist of competencies that are pertinent to the role of study for which that nurse is preparing. DNP graduates possess the ability to discern scientific knowledge derived from evidence-based research and translate that information into practice changes (AACN, 2006). Practice changes should improve quality, be mindful of healthcare resources, ethical in nature, and apply equally throughout society.

Essentials are a guide to practice implications when relatable to certain environments. This project utilized seven of the eight Essentials based upon the design and outcomes. Essential V was not relevant, nor was it feasible to integrate due to the project's administrative nature.

Essential I: Scientific underpinnings for practice. This Essential provided the core scientific foundations to the DNP practice (AACN, 2006). Its focal point presents “principles and laws that govern the life-process, ...patterning of human behavior in interaction with the environment, ...[and] nursing actions or process by which positive changes in health status are affected” (AACN, 2006, p. 9). This project studied the effects of patient no-shows in primary care which present a tremendous burden with far reaching effects. This phenomenon is linked to poor health outcomes, loss of revenue, decreased access, and disruptions related to continuation

of care (Nguyen & DeJesus, 2010). No-show patients cite both logical and physical reasons for their absenteeism, yet most simply forget about their appointments (Lacy et al., 2004).

Although this problem is not new, its significance lies with the variables that affect each clinical situation. A literature review demonstrated that no-shows decreased with an additional nursing led manual phone call reminder prior to the actual appointment (Childers et al., 2016; Clouse et al., 2015; Hasvold & Wootton, 2011; Liu et al., 2014; Parikh et al., 2010; Shah et al., 2016; Teo et al., 2017; Woods, 2011). This EBI was feasible to facilitate in the project clinic.

King's nursing theory of goal obtainment was utilized to provide a foundation to the project. This theory supported the idea that enhanced communication between the patient and the clinic would lead to a reaction, interaction, and finally a transaction. The manual reminder served as a catalyst for a reaction to the no-show behavior. An interaction occurred as a result of the manual phone call leading to a conversation between the patient and the nurse regarding the upcoming appointment. Lastly, a transaction was produced once the patient stated their objective which was whether they would be attending the appointment (King, 1997).

Nursing research and QI projects continue to be needed to improve health outcomes for patients in primary care relating to determinates of no-show behavior. Healthcare barriers, resource availability, provider shortages, and the expansion of primary care services beyond clinic walls remains topics that have not been fully studied. These endeavors could lead to the discovery of new interventions that could be integrated into QI projects of the future.

Essential II: Organization and systems leadership for quality improvement and systems thinking. Essential II is advantageous for the development of initiatives that are both quality related and cost effective. Its premise is based on “care delivery approaches [that] ensure accountability for quality healthcare and patient safety, ...[the] use of advanced communication

skills, ... [while it] employ principles of business, finance, [and] economics” (AANC, 2006, p. 11).

Patient no-shows in primary care cite forgetfulness as one of the reasons for no-show behavior (Lacy et al., 2004). This behavior can be alleviated with nurse led manual phone reminders that reach this population within 24 hours to the appointment. Yet research by Shah et al. (2016) found that this modality was not always feasible due to the economic impact and time restraints. Prior to project implementation, clinic management had concerns about cost and staff availability. These worries kept the project site from implementing nurse led reminders. The project proposed this EBI as the most effective. Clinic management agreed on the EBI trial and noted appropriate timing of the project in that this duty was assigned to an office intern.

The success of the nurse led phone reminders was evident in the data that was generated during the eight-week trial verses previous no-show data. The project evidence persuaded clinic management to sustain this office procedure. The former concerns about staff availability and cost were shown to be erroneous by demonstrating the amount of time needed for the task and the actual savings from decreased no-shows. Results of the project were disseminated further amongst this physician network system to recommend changes to its other clinics with no-show problems. Ethically, this intervention caused no personal or financial harm to this patient population.

Essential III: Clinical scholarship and analytical methods for EBP. This Essential has been labeled as the “hallmark of doctoral education” (AACN, 2006, p. 11). It serves as a cornerstone by allowing nursing research to form a foundation on which clinical scholarship translates into a model for clinical application. This is achieved by expanding the domain of scientific knowledge to create relevance to meet healthcare needs (AACN, 2006). Essential III is

defined using “analytic methods to critically appraise existing literature, ...evaluate outcomes of practice, ...design, direct, and evaluate quality improvement, ... develop practice guidelines, ...collaborative knowledge, ...[and] disseminate findings” (AACN, 2006, p. 12).

This project took a multi-method approach to reducing no-shows. The primary intervention was the nurse led telephone reminder which was modeled after the examples presented in the research with no variation. Project preparation was completed with collaboration from clinic management, IT staff, and leadership within the physician network. This teamwork generated knowledge about the clinic process while the project leader presented suitable interventions. This alliance continued throughout the various stages of the project until completion.

Nursing leadership assumed the role of project leader with close reliance on office management during the intervention stages. The clinic management decided on the topic of no-shows while the project leader took full responsibility for the literature review and intervention design. At various points of the project, nursing leadership sought approval from the university level then from the IRB committee. Lastly, leadership promoted this project at the clinic level and followed it evaluation weekly until completion.

Project findings were disseminated informally through leadership collaboration at weekly meetings. Upon completion, the findings were formally presented to clinic and network management in a formal report that supplied analytic data. Formal presentation was also disseminated into a poster presentation within the university. Finally, the project manuscript was submitted to a scholarly journal for manuscript review.

Essential IV: Information systems/technology and patient care technology for the improvement and transformation of healthcare. This Essential entailed proficiency in the use of information technology which may or may not be integrated into direct patient care. It also ensured the safety of patient information within healthcare systems. The essence of this Essential was achieved when the project manager analyzed the no-show and survey data and presented this information with the use of charts and graphs. Patient information was never affected so enhanced security measures were not needed. Prior to the start of the project, leadership studied the present patient scheduling software to determine its capabilities to include a no-show letter that would be generated for each no-show. The present system had this capability however it was not consistently utilized.

Essential V: Healthcare policy for advocacy in healthcare. This Essential is directed at creating or changing an aspect related to healthcare policy. Such policies are related at the governmental, state, and local levels. They may involve finance, access to care, patient safety or other areas that influence how care is given (AACN, 2006). This QI project did not influence healthcare policy in any aspect and was deemed as non-applicable.

Essential VI: Interprofessional collaboration for improving patient and population health outcomes. Essential VI allowed the project leader to demonstrate collaboration and leadership skills at various times throughout the project. The AACN (2006) defines these abilities within this Essential as “effective communication and collaborative skills in the development and implementation of practice models, peer review, practice guidelines, health policy, standards of care, and/ or other scholarly products” (p. 15). The act of collaboration occurred amongst several different individuals but not across different disciplines beyond nursing. The project findings showed that utilizing the nurse led reminder phone call was

beneficial to decreasing the no-show rate. Future collaboration amongst other medical offices might allow opportunities for this clinic manager to share the success of these results.

Essential VII: Clinical prevention and population health for improving the nation's health. Preventative and succession healthcare is successful when patients commit to their wellness and attend appointments (Martini da Costa et al., 2009). This Essential has enabled the nurse leader to combine the ability to integrate preventative services with population health to promote healthier lifestyles. It defines the DNP as being able to “synthesize concepts, including psychosocial dimensions and cultural diversity, related to clinical prevention and population health in developing, implementing, and evaluating interventions to address health promotion/disease prevention efforts, improve health status/access patterns, and/or address gaps in care of individuals, aggregates, or populations” (AACN, 2006, p. 16).

Literature revealed that no-shows were more likely to suffer worsening health conditions and more prone to hospitalizations which contrasted health promotion wellness (Nuti et al., 2012). Attendance at medical appointments are crucial for disease screening or treatment monitoring. The success of the manual phone reminder proved that patients were more likely to attend their appointments than previously with only an automated 48-hours reminder. This small adjustment allowed access to care and more efficient use of healthcare resources.

Essential VIII: Advanced nursing practice. Essential VIII extended the nursing role from that of following prescribed medical orders to one with advanced, autonomous skills and the capability to deliver healthcare. This higher branch of nursing provides patient access to healthcare services. Health organizations and governmental agencies that assist with this nursing transition gain valuable holistic providers. In addition, DNP professionals are able to go beyond the exam room and serve as leaders in various settings. Lastly, they are equipped with the ability

to educate the next generation of nurse professionals to strive for opportunistic gains which serve to extend the advance nurse role.

This Essential was reflected in the many roles of the APRN project leader throughout the experiment. Initially, the APRN directed topic development that was pertinent for the project, and meaningful in its purpose which was to allow greater access to care. While in the development stages, the APRN sought to educate the clinic staff by mentoring them on the effects of no-shows for both the patient and the clinic. This was evident in the agenda of the pre-intervention meetings and training sessions. Once the staff felt confident in the project purpose and their role within it, the APRN demonstrated the ability to lead the project through completion.

This Essential also allowed the APRN to disseminate the combined results to various settings including the project site and the supporting university. This leadership role gave growth and confidence to the APRN in data interpretation and application of the results to make procedural changes within the clinic. Last, the APRN's gained knowledge from this venture was useful for the project site and could be used futuristically within other settings with no-show problems.

Summary

The AACN's (2006) listing of DNP's Essentials are guidelines to the foundations of the DNP education. These guidelines are universal and can be applicable to any focus of advance nursing care. This project was able to demonstrate that the utilization of most of the Essentials allowed for a more robust project.

Chapter Eight: Final Conclusions

The QI project was able to meet its primary outcome of a decrease in the no-show problem for the clinic site. This goal was accomplished by the staff with an additional reminder phone call. The missed appointment letter data proved that the current no-show population had been receiving a follow-up letter for each absentee; this was uncertain at the start of the project. Lastly, the survey information allowed the site to understand the satisfaction and concerns of their patients about the current reminder systems.

Significance of Findings

There were significant findings with each intervention. The staff led phone call was found to be a simple and an efficient way to remind patients about their up-coming appointment 24-hours in advance. This phone reminder was used in addition to the 48-hour reminder given either by text message, phone call, or email. In addition to determining the decreased no-show rate, data also revealed that Tuesday appointments and follow-ups were missed the most.

The overall increased attendance rates met the initiatives known as Triple Aim by providing a low-cost solution for utilizing appointments in a more effective way and increased access to care. The clinic site has decided to continue this intervention beyond the project due to its success in lowering the no-show rates.

The discovery that the reminder letter was being utilized as it needed to be was an aimable surprise. All no-show patients were getting mailed a letter about their absenteeism with the only exceptions being those whose contact information was no longer applicable. Initially, there was concern that this letter was not being sent because it required additional work for the administrative staff. Those employees were tasked with having to recognize the no-shows and

then initiate the form letter from the scheduling system. This concern was found to not be a problem and no further changes were needed to this mode of communication.

The survey was utilized as a tool to determine the approval and or concerns of the patient population about the clinic appointment reminders techniques. The survey tool was administered easily to patients while in the waiting room. There was no patient personal information collected and responses could easily be tabulated to determine the outcomes. The survey captured a demographic picture of the patients, an overall satisfaction score for the current reminders, and determined if the staff led phone call had helped the participants to remember to attend their appointments. Most of the patients were happy with the way this office was informing them of their appointments and felt that the additional phone call from the staff was beneficial. One discovery was the large number of patients who stated that they preferred text messaging as a reminder modality.

Project Strength and Limitations

The project was found to have both strengths and limitations. The most plausible strength was found in the clinic staff who were receptive to the project. The office manager was onsite daily ensuring that the attendance data was being collected, phone calls were made, and surveys collected. This allowed the project to function with very little conflict. Another project strength was that the interventions consisted of easy tasks that did not require the staff to commit large amounts of time away from their other duties. Last, this project was inexpensive with additional duties being completed by an intern student thus not having a direct affect on the clinics budget while in implementation.

Overall this specific project held two main limitations. The first limitation was the pre and post data collection time frames. The pre-intervention data was collected during the fall and

winter months of 2018 compared to the post intervention data being in the spring and summer of 2019. This different time frame could have accounted for the variation in the total number of appointments from the pre and post periods. Fall and winter months are historically times when more patients are seen for bacterial and viral infections that presented an underlying variable that would not have been present during the intervention phase.

The second limitation was two questions from the survey questions that appeared to be confusing. Question number four was only meant to be answered if the patient had not received any type of pre-appointment reminder; yet several participants answered the question when they had been reminded on several occasions. The results of this question were skewed and not useable. Question number 5 had a Likert Scale response with 1 being very dissatisfied and 5 being very satisfied. The staff felt that this read inappropriately and requested that the response order be changed for clarity.

Generalized limitations also existed. This project was completed in a small clinic with three providers who only saw an average of 30 patients per day. It is unclear if the same results could have occurred in a larger clinic with greater patient volume. In addition, the commitment of the staff may have been different had it not been for the clinic managers desire to participate.

Project Benefits

The primary benefit from this project was the medical clinics decreased no-show attendance rates. Through this process the staff discovered that the additional phone reminder intervention was not time consuming nor difficult to integrate into the daily front office routine. This interventions outcome proved to be cost effective by utilizing office appointments more efficiently.

Potential benefits of continuing the pre-appointment manual phone reminder is added revenue that could be used to

- attract more patients,
- run a campaign for [further] patient retention,
- effectively manage cash flow,
- improve... online presence,
- invest in staff training,
- launch at least one new service,
- improve patient experience or patient satisfaction score,
- reduce operating costs,
- improve the quality and quality of online reviews...,
- improve leadership qualities (Parker, 2017, para 23).

The benefits of the survey were the collection of information from the patients related to appointment scheduling. This data may lead to other administrative changes for different reminders that would also allow for further reduction of the no-show rate. New knowledge was obtained by the staff and project manager who had an opportunity to learn and experience the QI process in relation to this medical issue. The project happened to be one that was relatively small with easy interventions that could potentially be replicated in the future with other larger clinics within this healthcare network.

Recommendations for Practice

The project findings were substantial and sustainable. Therefore, it was recommended to the office manager and project champion that the primary intervention, the staff led phone reminder, be continued. The additional revenue that resulted from the staff led phone reminders

could be used to justify the hiring of a medical office assistant to perform all reminder phone calls 24 hours in advance of the appointments. Clinic management agreed and relayed that the office had continued making the manual phone reminders beyond the project dates. The front office assistant has been assigned this task and at this point there has been no further need for new personnel.

The clinic has continued to track no-shows only with using the pre project data tools. The spread sheets developed for the QI project were deemed to be very specific with data collected that was not felt to be necessary at the present time. All data analysis was presented to the clinic site managers who have planned to present this information to others within the organization; however, there are no current plans to present the results in any journal or external publication.

Additional projects have emerged related to the overall scheduling reminders. One significant finding from the survey was that many patients wrote in that they wished to be reminded with a text message. This type of reminder was found to be a distant second compared to the automated telephone reminder. SMS messages are available, but only if the patients personally make a change within the patient portal. A simple change in the automatic notification system could be explained by an office assistant to interested patients that would allow text messages in the place of automated phone calls. This would allow patients to receive text messages first followed by the additional staff led manual phone call reminder 24 hours prior to the appointment. Due to the large reply for SMS messages the office has decided to provide additional patient education about this topic.

Final Summary

Medical clinics have long been plagued with patient no-shows for decades. Literature on this topic was found to date back to the 1970's. As technology has progressed so has the need for new methods of communicating appointment reminders to patients. Yet this project was able to show that a manual phone reminder was creditworthy at decreasing the overall no-show rates. This proven mode of communication along with newer technology such as SMS and email will only work to enhance appointment attendance.

At the start of this project it was felt that this topic would be difficult to incite a change, yet this has been accomplished. The process of completing this QI project has been an education in of itself and a monumental accomplishment. Despite the difficulties of this process it has been rewarding to see significant changes to this attendance problem due to a simple intervention and project commitment. In closing, future QI projects relating to this topic are still needed to ensure that the no-show problem continues to be addressed, and access to healthcare remains available.

References

- American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice*. Retrieved from <https://www.aacnnursing.org/Portals/42/Publications/DNPEssentials.pdf>
- Ansell, D., Crispo, J. A. G., Simard, B., & Bjerre, L. M. (2017). Interventions to reduce wait times for primary care appointments: A systematic review. *BMC Health Services Research, 17*, 1-9.
- Bodenheimer, T. S., & Grumbach, K. (2009). *Understanding health policy: A clinical approach*. New York, New York: McGraw-Hill.
- Bundy, D. G., Randolph, G. D., Murray, M., Anderson, J., & Margolis, P. A. (2005). Open access in primary care: Results of a North Carolina Pilot Project. *Pediatrics, 116*, 82-87.
- Butts, J. B., & Rich, K. L. (2015). *Philosophies and theories for advanced nursing practice*. Burlington, Massachusetts: Jones & Bartlett Learning.
- Childers, R. E., Laird, A., Newman, L., & Keyashian, K. (2016). The role of a nurse telephone call to prevent no-shows in endoscopy. *Gastrointestinal Endoscopy, 84*(6), 1010-1017.
- Clouse, K. M., Williams, K. A., & Harman, J. M. (2015). Improving the no-show rate of new patients in outpatient psychiatric practice: An advance practice nurse-initiated telephone

- engagement protocol quality improvement project. *Perspectives in Psychiatric Care*, 53, 127-134.
- Crutchfield, T. M. & Kistler, C. E. (2017). Getting patients in the door: Medical appointment reminder preferences. *Dove Medical Press*, 11, 141-150.
- Davies, M. L., Goffman, R. M., May, J. H., Monte, R. J., Rodriquez, K. K., Tjader, Y. C., & ,nmVargas, D. L. (2016). Large-scale no-show patterns and distributions for clinic operational research. *Healthcare*, 4(15), 1-12.
- Drewek, R., Mirea. L., & Adelson, P. D. (2017). Lead time to appointment and no-show rates for new and follow-up patients in ambulatory clinic. *The Health Care Manager*, 36(1), 4-9.
- DuMontier, C., Rindfleisch, K., Pruszyński, J., & Frey, J. J. (2013). A mulit-method intervention to reduce no-shows in an urban residency clinic. *Family Medicine*, 45(9), 634-641.
- Faiz, K. W., & Kristoffersen, E. S. (2018). Association between age and outpatient clinic arrival time: Myth or reality? *BMC Health Services Research*, 18, 1-8.
- Finkelstein, S. R., Liu, N., Jani, B., Rosenthal, D. & Poghosyan, L. (2013). Appointment reminder systems and patient preferences: Patient technology usage and familiarity with other service providers as predictive variables. *Health Informatics Journal*, 19(2), 79 – 90.

- Gauthier, C., Lindwall, E., Davis, W., & Quinet, R. (2012). Spanning generations-appointment reminder preferences among patients with rheumatic diseases. *Journal of Clinical Rheumatology*, 18(6), 294-297.
- Gebhart, T. (2017). *No-show management in primary care: A quality improvement project* (Doctoral dissertation, Oregon Health & Science University) Retrieved from <http://digitalcommons.ohsu.edu/etd/392>. (Scholar Archive. 3923)
- Griffin, S. J. (1998). Lost to follow-up: The problem of defaulters from diabetes clinics. *Diabetic Medicine*, 15(suppl.3), S14-S24.
- Gupta, D. & Denton, B. (2008). Appointment scheduling in health care: Challenges and opportunities, *IIE Transactions*, 40(9), 800-819. doi: 10.1080/07408170802165880
- Gurol-Urganci, I., de Jongh, T., Vodopivec-Jamsek, V., Atun, R., & Car, J. (2013). Mobile phone messaging reminders for attendance at healthcare appointments (Review). *Cochrane Database of Systematic Review*, 12, 1-48.
- Hasvold, P. E., & Wootton, R. (2011). Use of telephone and SMS reminders to improve attendance at hospital appointments: A systematic review. *Journal of Telemedicine and Telecare*, 17(7), 358–364. <http://doi.org.jproxy.lib.ecu.edu/10.1258/jtt.2011.110707>

Healthy People 2020. (n.d.). Access to health services. Retrieved from
<https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health/interventions-resources/access-to-health>

Henry, S. R., Goetz, M. B., & Asch, S. A. (2012). The effect of automated telephone appointment reminders on HIV primary care no-shows by veterans. *Journal of the Association of Nurses in AIDS Care*, 23(5), 409-418.

Institute for Healthcare Improvement. (n.d.). *How to improve*. Retrieved from
<http://www.ihl.org/resources/Pages/HowtoImprove/default.aspx>

James, K. A., Ross, S. E., Vance, B., Nath, R., Harrison, M. I., & West, D. R. (2015). Inefficiency in primary care: Common causes and potential solutions. *Family Practice Management*, 22(2), 18-22.

Kaplan-Lewis, E., & Percac-Lima, S. (2013). No-show to primary care appointments: Why patients do not come. *Journal of Primary Care & Community Health*, 4(4), 251-255.

Kheirkhah, P., Feng, Q., Travis, L. M., Tavakoli-Tabasi, S., & Sharafkhaneh, A. (2016). Prevalence, predictors and economic consequences of no-shows. *BMC Health Services*, 16, 1-6.

King, I. M. (1997). King's theory of goal attainment in practice. *Nursing Science Quarterly*, 10(4), 180-185.

Killeen, M. B., & King, I. E. (2007). Viewpoint: Use of King's conceptual system, nursing informatics, and nursing classification systems for global communication. *International Journal of Nursing Terminologies and Classifications*, 18(2), 51-57.

Lacy, N. L., Paulman, A., Reuter, M. D., & Lovejoy, B. (2004). Why we don't come: Patient perceptions on no-shows. *Annals of Family Medicine*, 2(6), 541-545.

Liu, Q., Abba, K., Alejandria, M. M., Sinclair, D., Balanag, V. M., & Lansang, M. A. D. (2014). Reminder systems to improve patient adherence to tuberculosis clinic appointments for diagnosis and treatment. *The Cochrane Database of Systematic Reviews*, 11, 1–59. doi: 10.1002/14651858.CD006594.pub3

Martin, C., Perfect, T., & Mantle, G. (2005). Non-attendance in primary care: the views of patients and practices on its causes, impact and solutions. *Family Practice*, 22(6), 638-643.

Martini da Costa, T., Salomao, P. L., Martha, A. S., Pisa, I. T., & Sigulem, D. (2009). The impact of short message service text messages sent as appointment reminders to patients' cell phones at outpatient clinics in Sao Paulo, Brazil. *International Journal of Medical Informatics*, 79, 65-70.

- Neprash, H. T. (2016). *Better late than never? Physician response to schedule disruptions* (Doctoral thesis, Harvard University). Retrieved from <https://scholar.harvard.edu/hannahneprash/publications/better-late-never-physician-response-schedule-disruptions>
- Nuti, L. A., Lawley, M., Turkcan, A., Tian, Z., Zhang, L., Chang, K., ... Sands, L. P. (2012). No-shows to primary care appointments: Subsequent acute care utilization among diabetic patients. *BMC Health Services*, 12, 1-9.
- Panozzo, G. (2018). An intervention to reduce medication noncompliance and hospitalizations. *Home Healthcare Now*, 36(1), 34-42.
- Parikh, A., Gupta, K., Wilson, A. C., Fields, K., Cosgrove, N. M., & Kostis, J. B. (2010). The effectiveness of outpatient appointment reminder systems in reducing no-show rates. *The American Journal of Medicine*, 123(6), 542-548.
- Parker, S. M. (2017, December 29). How to set achievable goals for your medical practice. *Practice Builders*. Retrieved from <https://www.practicebuilders.com/blog/how-to-set-achievable-goals-for-your-medical-practice/>
- Perron, N. J., Dao, M. D., Righini, N. C., Humair, J.-P., Broers, B., Narring, F., ... Gaspoz, J.-M. (2013). Text-messaging versus telephone reminders to reduce missed appointments in an

academic primary care clinic: A randomized controlled trial. *BMC Health Services Research*, 13, 1-7.

Percentage of No-Show Appointments. (n.d.). Retrieved from

<http://www.ihl.org/resources/Pages/Measures/PercentageofNoShowAppointments.aspx>

Robotham, D., Satkunanathan, S., Reynolds, J., Stahl, D., & Wykes, T. (2016). Using digital notifications to improve attendance in clinic: systematic review and meta-analysis. *BMJ Open*, 6, e012116. doi: 10.1136/bmjopen-2016-012116

Saine, P. J., & Baker, S. M. (2003). What is the best way to schedule patient follow-up appointments. *Joint Commission Journal on Quality and Safety*, 29(6), 309-315.

Shah, S. J., Cronin, P., Hong, C. S., Hwang, A. S., Ashburner, J. M., Bearnot, B. I., ... Kimball, A. B. (2016). Targeted reminder phone calls to patients at high risk of no-show for primary care appointment: A randomized trial. *Journal of General Internal Medicine*, 31(12), 1460-1466. doi:10.1007/s11606-016-3813-0

Steiner, J. F., Shainline, M. R., Bishop, M. C., & Xu, S. (2016). Reducing missed primary care appointments in a learning health system. Two randomized trials and validation of a predictive model. *Medical Care*, 54, 689-696.

Tanke, E. D., & Leirer, V. O. (1994). Automated telephone reminders in tuberculosis care. *Medical Care*, 32(4), 380-389.

Teo, A. R., Forsberg, C. W., Marsh, H. E., Saha, S., & Dobscha, S. K. (2017). No-show rates when phone appointment reminders are not directly delivered. *Psychiatric Services*, 68, 1098-1100.

Woods, R. (2011). Perspectives in Ambulatory Care. The Effectiveness of Reminder Phone Calls on Reducing No-Show Rates in Ambulatory Care. *Nursing Economic\$, 29(5)*, 278-282.

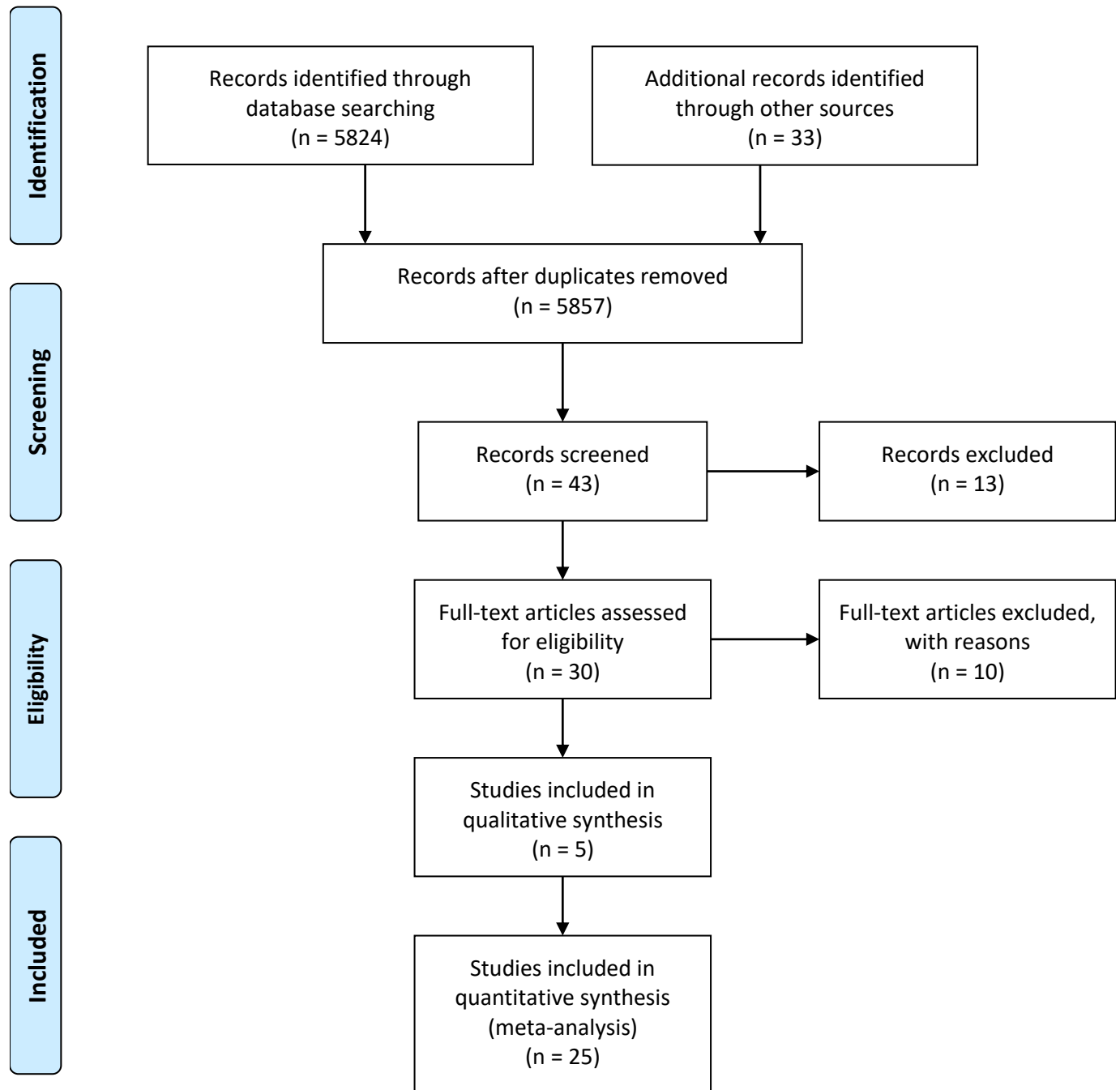
Appendix A

Literature Search - Key Terms and Results

#	Term for search	Database	number of total hits		number used from search		Filters added
1	patient AND no-show AND primary care	PubMed Medline	96		11		
2	(text messaging AND no-shows)	PubMed Medline	6		1		
3	text messaging AND telephone reminders AND no-shows	PubMed Medline	4		0		
4	no-show appointments AND follow-up	PubMed Medline	50		1		
5	primary care AND no-show	PubMed Medline	100		1		
6	patients AND non-attendance	PubMed Medline	414		1		
7	patients AND non-attendance AND attitude	PubMed Medline	260		2		
8	primary care and inefficiency	PubMed Medline	147		1		
9	reminder systems	PubMed Medline	3738		1		
10	Cochrane database AND patient reminder systems	PubMed Medline	44		2		
11	Generations AND appointment preference	PubMed Medline	13		1		
12	QI project AND patient no-shows AND primary care	GOOGLE Scholar	885		1		
13	patient AND no-show AND primary care	CINAHL Complete	23		1		3 filters
14	text messaging AND telephone reminders AND no-shows	CINAHL Complete	2		0		3 filters
15	no-show appointments AND follow-up	CINAHL Complete	5		0		3 filters
16	Generations AND appointment preference	CINAHL Complete	19		0		3 filters
17	patients AND non-attendance AND attitude	CINAHL Complete	18		0		3 filters

Appendix B

PRISMA Flowchart for Article Selection



Appendix C

Evidence Matrix

Stephanie Canipe	DNP I	Dr. T. Bell – Faculty	Date	Project: No-Show Management in Primary Care
Article (APA)	Level of Evidence (I-VII)	Data/ Evidence Findings	Conclusion	Use of Evidence in EBP Project Plan (Evaluation, strengths, limitations & relevance)
Childers, R. E., Laird, A., Newman, L., & Keyashian, K. (2016). The role of a nurse telephone call to prevent no-shows in endoscopy. <i>Gastrointestinal Endoscopy</i> , 84(6), 1010-1017.	Level VII	QI project that utilized a nurse-initiated telephone call reminder for endoscopic appointments and procedures. Results showed that no-show rate was reduced by 33%	Hiring a nurse to perform this duty for this outpatient procedure was financially beneficial. Study also found that single men more likely to no-show for this environment than those who had a vest partner.	Calls were made 7 days prior to appointments which increased the odds of patients showing for their appointments. Limitations: only able to compare patients before and after the intervention; results cannot be generalized to other populations or clinics
Clouse, K. M., Williams, K. A., & Harman, J. M. (2015). Improving the no-show rate of new patients in outpatient psychiatric practice: An advance practice nurse-initiated telephone engagement protocol quality improvement	Level VII	QI Project of a telephone engagement protocol (TEP) where advanced practice registered nurses (AGRN) called patients using motivational interviewing (MI) techniques to engage patients particularly with keeping mental health appointments.	TEP has the potential to engage patients and improve access.	Use of TEP may be possible to implement with the missed appointment intervention should the patient not call back to the office to reschedule their appointments. Although the interventions

project. <i>Perspectives in Psychiatric Care</i> , 53, 127-134.		TEP resulted in a 7% improvement to the overall no-show rate as compared to the previous year.		listed within this article are not of high evidence, there is potential in the link to MI that allows for strong patient engagement.
Crutchfield, T. M. & Kistler, C. E. (2017). Getting patients in the door: Medical appointment reminder preferences. <i>Dove Medical Press</i> , 11, 141-150.	Level IV	<p>Surveying patient preferences for four reminder attributes-initial reminder type, arrival of initial reminder, reminder content, and number of reminders.</p> <p>Reminder type was considered the most important at (21%) followed by number of reminders (10%).</p>	Patient-centered appointment reminders can improve attendance by meeting individual patient needs.	This evidence will be used in two ways: 1) it supports the idea of a patient survey related to reminder modality preference. Having this knowledge may lead to future studies or recommendations related to how technology is currently being utilized within this setting; 2) the evidence from this study shows that patients prefer more than 1 appointment reminder. This supports the additional reminder notification via telephone or SMS.
Drewek, R., Mirea, L., & Adelson, P. D. (2017). Lead time to appointment	Level III	Lead time to appointment of 0-30 days was compared to appointment that	Longer appointment times that are greater than 30	This information will be used to support the need to re-engage the

and no-show rates for new and follow-up patients in ambulatory clinic. <i>The Health Care Manager</i> , 36(1), 4-9.		had been scheduled greater than 31 days. 0-30 days no-show rate was 23% compared to 47% for appointments that were greater than 31 days.	days are at higher risk of patient no-show.	patient with the missing appointment letter. This is due to time being considered a risk factor that is linked to no-shows.
DuMontier, C., Rindfleisch, K., Pruszyński, J., & Frey, J. J. (2013). A multi-method intervention to reduce no-shows in an urban residency clinic. <i>Family Medicine</i> , 45(9), 634-641.	Level I	Identification of potential no show patients and using a multi-method approach to interventions was used to show a decrease in no-shows from 33% to 17.7%. Findings have persisted.	Patients that are high risk for no-show may need a variety of interventions. This may include those that are administrative along with scheduling techniques.	This information is supportive of patient education. The missed appointment letter will read as it states, missed appointment, but will also lend to educating the patient. Here education may be related to continuity of care.
Finkelstein, S. R., Liu, N., Jani, B., Rosenthal, D. & Poghosyan, L. (2013). Appointment reminder systems and patient preferences: Patient technology usage and familiarity with other service providers as predictive variables. <i>Health Informatics Journal</i> , 19(2), 79 – 90.	Level VI	A cross-sectional survey was conducted to determine patient preferences for reminder system, familiarity with other service providers, and their responsiveness to reminder systems. Results showed strong variation in the type of technology used. 69% used land lines, of those with cellphones 31%	Appointment reminder systems can be improved if patient preference is taken into consideration. Patient diversification should not be dismissed when it comes to use and familiarity of technology.	This is one of the first studies of this type to examine patient preference in primary care. This information will be used with the development of a patient preference survey for the QI project clinic.

		replied that they could not send text messages		
Gauthier, C., Lindwall, E., Davis, W., & Quinet, R. (2012). Spanning generations-appointment reminder preferences among patients with rheumatic diseases. <i>Journal of Clinical Rheumatology</i> , 18(6), 294-297.	Level VI	Survey of appointment reminders for which patients stated a preference for the timing of their reminder to be: 4 days or less (72%), between 5-7 days (16%), 8 days or longer (12%). (52%) preferred a telephone call modality vs, (27%) who preferred SMS	Modality, but not timing, preference varied with age. SMS were the preferred modality for generation Y whom have been noted to be a population that is particularly prone to no-show in this environment.	This is the first study to assess patient preferences related to appointment reminders in a rheumatoid clinic. This evidence supports the need to assess this particular population to determine effectiveness of currently used modalities.
Griffin, S. J. (1998). Lost to follow-up: The problem of defaulters from diabetes clinics. <i>Diabetic Medicine</i> , 15(suppl.3), S14-S24.	Level V	Systematic review of qualitative data that described patient features associated; patient views, problems with outside scheduling (hospital). Multiple interventions were documented	An intervention was given that included mailed appointment details, then followed a booklet about diabetes and self-care within two weeks, and within one week of the appointment a postcard reminder was sent. Last intervention was to contact	Multi-intervention approach is more beneficial at decreasing no-shows

			those who missed appointments by telephone or letter to re-establish care.	
Gurol-Urganci, I., de Jongh, T., Vodopivec-Jamsek, V., Atun, R., & Car, J. (2013). Mobile phone messaging reminders for attendance at healthcare appointments (Review). <i>Cochrane Database of Systematic Review</i> , 12, 1-48.	Level I	Moderate quality evidence was found in 8 RCT that mobile text messages improved attendance rate; of 3 articles evidence of text messages has a similar result as the telephone message reminders; and 1 low quality article that mobile combined with postcards increased attendance.	Systematic review of recent research found support for using text messaging to send reminders systems. SMS was also found to be cost effective in this research.	Support of using text messaging within current clinic and the use of an additional text reminder.
Hasvold, P. E., & Wootton, R. (2011). Use of telephone and SMS reminders to improve attendance at hospital appointments: A systematic review. <i>Journal of Telemedicine and Telecare</i> , 17(7), 358–364. http://doi.org.jproxy.lib.ecu.edu/10.1258/jtt.2011.110707	Level I	With sending reminders there was a 34% change in non-attendance rates compared to the baseline; Automated reminders (29%) were less effective than manual phone calls (39%).	In response to the scheduling of hospital appointments, this systematic review found that all but one article reported sending reminders messages as beneficial. Timing of reminder was not significant.	Strong evidence to support the need for an additional reminder notification. Manual reminders have lower no-show rate than automated. In this study the time between the reminder and the appointment did not yield any significance. Limitation initial search from Medline despite evidence from a

				study that suggested that 80% of telemedicine papers were located on this database.
Henry, S. R., Goetz, M. B., & Asch, S. A. (2012). The effect of automated telephone appointment reminders on HIV primary care no-shows by veterans. <i>Journal of the Association of Nurses in AIDS Care</i> , 23(5), 409-418.	Level III	Intervention group was given an additional automatize telephone appointment reminder 2 weeks prior to their appointment in addition to the three normal ways of being notified. Interventions did not decrease no shows except in those patients who had 5 or more appointments their no-show rates dropped by 41% - unexpected finding.	This evidence did not conclude that adding an automated telephone reminder to the standard set of 3 reminders was helpful to patients in reducing HIV clinic no-shows. This may be due to specifics related to this population such as homelessness, African Americans, Hispanic Americans, and patients with comorbid clinical or medical health conditions.	The information supported clinics making sure of up-to-date contact information and the use of computerized systems to support this. Limitations: 1) from data set in determining true demographics; 2) study was not able to determine the percentage of patients who did not have up-to-date contact information; 3) the pre/post evaluation study did not account for patients who may have had multiple appointments on that same day thereby decreasing the likelihood of no-show; 4) financial barriers

				to HIV care within the VA
Kaplan-Lewis, E., & Percac-Lima, S. (2013). No-show to primary care appointments: Why patients do not come. <i>Journal of Primary Care & Community Health</i> , 4(4), 251-255.	Level VI	(35.5%) claim forgetting as reason for no-show verses (31.5%) misunderstanding	No-shows were defined by descriptive statistics.	One strength/weakness of this article is its focus on Latino population. Supports need for survey written in English & Spanish.
Lacy, N. L., Paulman, A., Reuter, M. D., & Lovejoy, B. (2004). Why we don't come: Patient perceptions on no-shows. <i>Annals of Family Medicine</i> , 2(6), 541-545.	Level VI	Qualitative study that gave patient interviews based on why they chose to no-show. Results: (65%) emotional barriers; (44%) felt disrespected by healthcare system. (41%) failed to understand ramifications related to no-show behavior.	The implications of this study are for OA scheduling which can be both negative and positive for patients. It is positive in that it can elevate long wait times and fear related to conditions; negative because it may prompt overcrowding in waiting rooms along with longer waits in office.	Limitations of this study was the sample size. Yet there is strength in identify patient fear with the delivery of care. This information has been useful with background knowledge. It may also assist in the missed letter intervention.
Liu, Q., Abba, K., Alejandria, M. M., Sinclair, D., Balanag, V. M., & Lansang, M. A. D. (2014). Reminder systems to improve	Level I	Telephone reminders increased clinic attendance from 50 to 60%; reminder letters increase clinic attendance from 10 to 52%; default	Classification of reminder systems as being pre-appointment and default. Default	Limitations for these studies is potential for bias and difficulty with replication.

patient adherence to tuberculosis clinic appointments for diagnosis and treatment. <i>The Cochrane Database of Systematic Reviews</i> , 11, 1–59. doi: 10.1002/14651858.CD006594.pub3		reminders increased completion of health services from 73 to 88%	reminder systems seek to reengage the patient back into healthcare services.	Although cited as low evidence the use of default letter communication can serve as support for EBI of the missed appointment letter
Martin, C., Perfect, T., & Mantle, G. (2005). Non-attendance in primary care: the views of patients and practices on its causes, impact and solutions. <i>Family Practice</i> , 22(6), 638-643.	Level VI	Qualitative study that gave patient and provider interviews based on problem of non-attendance. Results – forgetfulness cited by both staff and patients as main reason for no-show; organizational barrier (specifically communication issues), providers felt that tardiness was more disruptive to the scheduling than no-show.	Interventions are needed that related to reminders with patients stating that they need to be simple and allowed for an easier option for cancelling appointments.	Limitations are that there were not quantitative comparisons, & small sample. This information has been useful with background knowledge. It may also assist in the missed letter intervention.
Martini da Costa, T., Salomao, P. L., Martha, A. S., Pisa, I. T., & Sigulem, D. (2009). The impact of short message service text messages sent as appointment reminders to patients' cell phones at outpatient clinics in Sao Paulo, Brazil. <i>International</i>	Level V	Data was collected on 7890 appointments that was preceded with a text message reminder as compared to those that did not get the text in four different clinics. In all four clinics the no-show rate dropped with this intervention with the lowest change being 0.82%	Sending text message reminders are a strong strategy as compared to sending letters or making phone calls. The cost of using text messages in this population was lower.	Text messaging should be used when available in addition to all other reminders. Limitations: patients may change phone numbers so contact data must be kept up-to-date

<i>Journal of Medical Informatics</i> , 79, 65-70.		to the highest being 14.49%.		
Parikh, A., Gupta, K., Wilson, A. C., Fields, K., Cosgrove, N. M., & Kostis, J. B. (2010). The effectiveness of outpatient appointment reminder systems in reducing no-show rates. <i>The American Journal of Medicine</i> , 123(6), 542-548.	Level II	Intervention was a RCT dividing subjects into 3 groups: 1 st the staff called to remind patient of appointment, 2 nd an automated phone call as a reminder, and 3 rd no reminder. The STAFF group no-show rate was 13.6%; AUTO 17.3%, and NONE was 23.1%. When surveyed the patients in the STAFF and AUTO reminders were not able to recall which type they had received.	Staff reminders are significantly better than automated in decreasing no-shows. Higher cancellation rates were associated with the STAFF group. This also demonstrated that delays between the scheduled appointment and the visit date can be a cause of no-show.	Limitations included the difference between the number of call attempts between the STAFF and AUTO systems. Difference in the time of day when calls were made. Study was conducted from March to July which may not show the effect of seasonality.
Perron, N. J., Dao, M. D., Righini, N. C., Humair, J.-P., Broers, B., Narring, F., ... Gaspoz, J.-M. (2013). Text-messaging versus telephone reminders to reduce missed appointments in an academic primary care clinic: A randomized controlled trial. <i>BMC Health Services Research</i> , 13, 1-7.	Level II	Patients who had registered for an appointment were also given a 24-hour reminder call or text message of the appointment. Rate of no-shows for telephone (10.2%) vs. text message (11.7%)	Text messages are the equivalent of telephone messages as a reminder system. What is unknown is if adding additional information to the text message if a change will occur.	Limitations to study was that it was completed in a single center primary care clinic, with low socio-economic status and rapid physician turnover. Study supports that text messages are as affective as telephone reminders and that both are

				well accepted by patients. This information has been useful with background knowledge.
Robotham, D., Satkunanathan, S., Reynolds, J., Stahl, D., & Wykes, T. (2016). Using digital notifications to improve attendance in clinic: systematic review and meta-analysis. <i>BMJ Open</i> , 6, e012116. doi: 10.1136/bmjopen-2016-012116	Level I	Patients who received notifications were (23%) more likely to attend clinic than those who received no notification (54%).	Electronic text notification improve attendance and reduce no-shows. Sending multiple notifications may improve attendance further.	Strength is the large data set was used and it distinguishes between different types of outcomes d/t being a meta-analysis. Receiving a notification (voice or text) allowed for less no-shows; when an added notification was used there was still less no-show absentees. No limitations noted. Information is supportive of additional reminder to current notification system.
Saine, P. J., & Baker, S. M. (2003). What is the best way to schedule patient follow-up appointments. <i>Joint</i>	Level III	Interventions included sending a reminder postcard vs. a reminder letter; then patients were given a survey to express their	Those who received the letter had a lower no-show than those with post cards. It was suspected	Those who received the letter had a pre-scheduled appointment. The post card reminder system

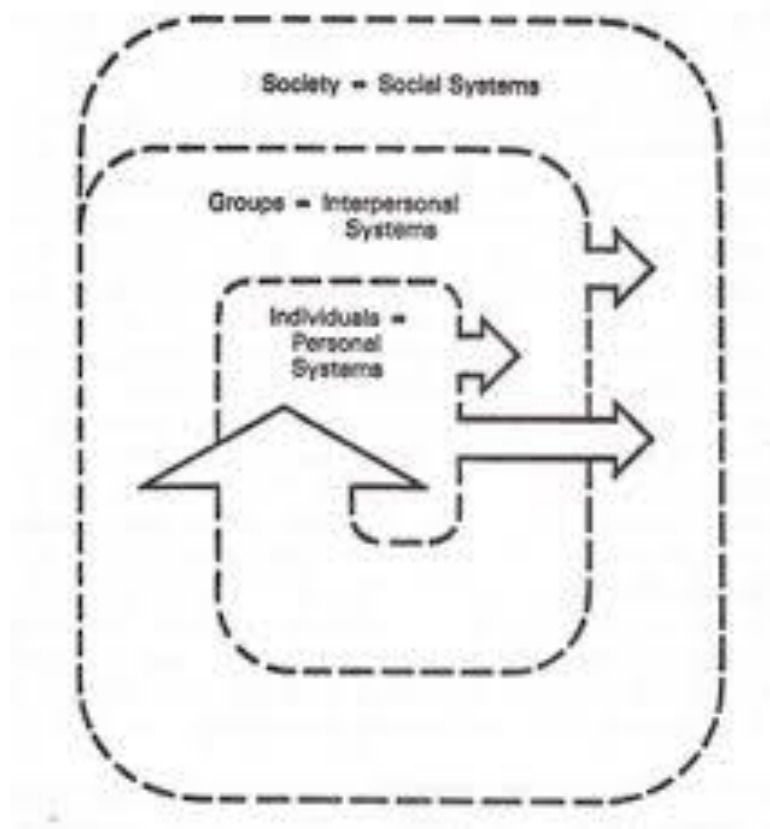
<i>Commission Journal on Quality and Safety</i> , 29(6), 309-315.		satisfaction of the postcard compared to the letter	that many patients had been lost to follow-up due to not responding to the post card.	does not provide for follow-up for patients who do not respond and those who become lost to the system.
Shah, S. J., Cronin, P., Hong, C. S., Hwang, A. S., Ashburner, J. M., Bearnot, B. I., ...Kimball, A. B. (2016). Targeted reminder phone calls to patients at high risk of no-show for primary care appointment: A randomized trial. <i>Journal of Internal Medicine</i> , 31(12), 460-466.	Level II	Intervention: Patients received a phone call from the patient service coordinator to engage patients in planning for upcoming appointment. No-shows in the intervention arm was 22.8% vs control arm of 29.2%	<p>Patient contact one week prior to their appointment may increase attendance.</p> <p>Rescheduling and canceled appointments occurred earlier in the intervention group.</p>	<p>Due to operational limitations, not all participants in the invention group received the completed intervention (phone call). This study would be difficult to replicate in small offices d/t not being able to implement the full prediction model.</p> <p>Information is supportive of additional reminder to current notification system and in determining the time needed for this extra reminder.</p> <p>This information has been useful with background knowledge.</p>
Steiner, J. F., Shainline, M. R., Bishop, M. C., &	Level II	Intervention of an interactive voice response telephone/	Confirmation that the IVR-T intervention	Strength is that this research was capable of being

Xu, S. (2016). Reducing missed primary care appointments in a learning health system. Two randomized trials and validation of a predictive model. <i>Medical Care</i> , 54, 689-696.		text messaging reminder vs no reminder that was also replicated at a different location. The intervention included a call to a land line or cell phone for which the patient could confirm or speak with an appointment line to cancel or reschedule. Patients receiving the telephone had a no-show rate of 6.5% as compared to 7.5% of the control arm.	reduced missed appointments. In addition, with the intervention arm appointments that are cancelled or rescheduled earlier have the potential for the backlog of patients to be scheduled in the newly opened appointments.	replicated and the validation of a prediction model. Information is supportive of additional reminder to current notification system.
Tanke, E. D., & Leirer, V. O. (1994). Automated telephone reminders in tuberculosis care. <i>Medical Care</i> , 32(4), 380-389.	Level II	Intervention was based on five message conditions that were automated. Attendance increased on the days that reminders had been sent out; there were no differences based on the variation of the message that was received.	Combining patient reminders with patient educations interventions may also increase the level of compliance than with either intervention alone.	Limitations is that this study cannot infer that automated reminders can be substituted for more complex educational programs.
Teo, A. R., Forsberg, C. W., Marsh, H. E., Saha, S., & Dobscha, S. K. (2017). No-show rates when phone appointment reminders are not directly delivered. <i>Psychiatric</i>	Level VII	QI project with an intervention of live telephone reminders (2) one the Friday prior to the appointment and the other, the day of the appointment. Results: 88% of participants attended their appointments.	Live reminders are associated with lower no-show rates (3%) than message reminders (24%) and no answer (39%).	Information supports EBI of the additional reminder, missed appointment letter, and the survey. Study is suggestive that text messaging

<i>Services</i> , 68, 1098-1100.				<p>reminder systems can be as affective especially those that are two ways (meaning that the patient must reply to the message confirming or declining).</p> <p>Limitation is that this work is QI not true research.</p>
Woods, R. (2011). Perspectives in Ambulatory Care. The Effectiveness of Reminder Phone Calls on Reducing No-Show Rates in Ambulatory Care. <i>Nursing Economic\$,</i> 29(5), 278-282.	Level VII	<p>QI project that involved calling VA patients daily to come to out-patient appointments. Results after EBI showed a decrease in no-shows from 29% to 4%, with the use of reminder letters the no-show rated dropped from 29% to 6%. Patients who received the calls were given the option to cancel or reschedule their appointments thus allowing for greater access.</p>	<p>Making daily phone calls to out-patient clients not only decreased the no-show rate significantly but it also allowed for backlog of patients to be scheduled thus allowing greater access to care.</p>	<p>Obstacles for making daily phone calls was the allocation of staff. This task took over an hour to complete daily leaving less staff to function with patient care.</p> <p>This information will be used to assist with the missed appointment letter intervention.</p>

Appendix D

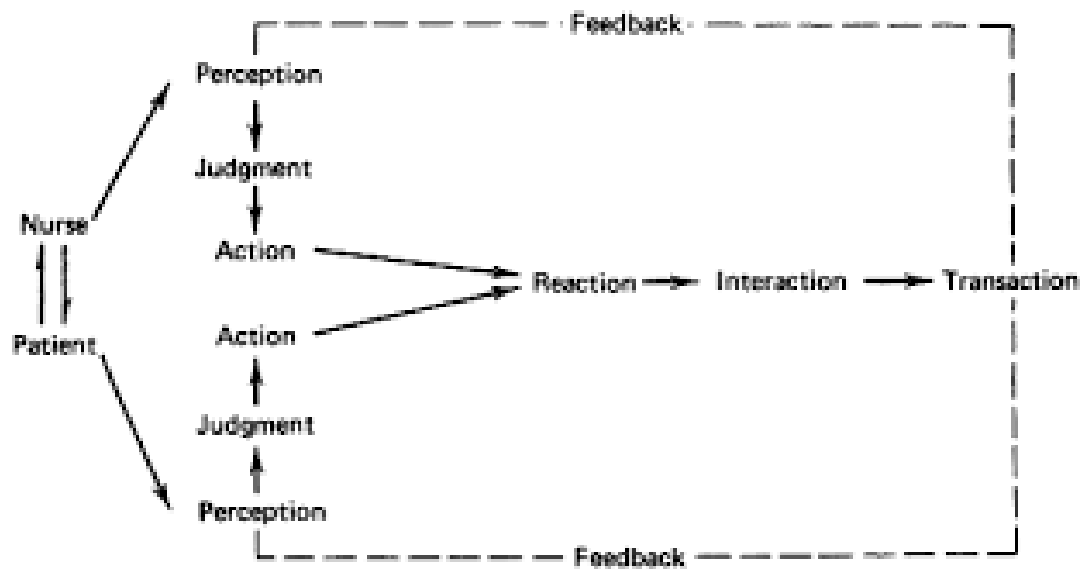
A Conceptual Framework for Nursing: Dynamic Interacting Systems



Note. Adapted from "King's Theory of Goal Attainment in Practice" by I. M. King, 1997, *Nursing Science Quarterly*, 10(4), p. 180.

Appendix E

A Model of Nurse-Patient Transaction



Note. Adapted from “King’s Theory of Goal Attainment in Practice” by I. M. King, 1997, *Nursing Science Quarterly*, 10(4), p. 181.

Appendix F

Iredell Family Medicine Letter of Support



Date: January 8, 2019

To Whom It May Concern

We at Iredell Family Medicine have reviewed Stephanie Canipe DNP Project title "Patient No-Show Education: a QI Project". Mrs. Canipe has organizational support and approval to conduct her project within our institution. We understand that for Mrs. Canipe to achieve completion of the DNP program, dissemination of the project will be required by the University, which will include a public presentation related to the project and a manuscript submission will be encouraged.

Our organization has deemed this project as quality improvement initiative and is requiring institutional IRB review.

Thank you

D'Asya Cooper, Office Manager

Jodi N. Stutts, M.D.

Iredell Family Medicine : 704-360-5190 : Fax 704-360-5180
544 Brawley School Road, Suite A, Mooresville, NC 28117 : iredellfamilymedicine.com

Appendix G

SWOT Analysis

Strengths	Weakness
<ul style="list-style-type: none"> • Small Clinic <ul style="list-style-type: none"> ○ Two providers ○ Four administrative medical assistants ○ Four clinical medical assistants ○ One office manager • Diversity of staff <ul style="list-style-type: none"> ○ women; ○ African American; ○ Caucasian; ○ Hispanic. • Excels in teamwork. • Excels in communication. • Provides compassionate care. • Clinic has support of larger network system. • Clinic offers a variety of healthcare services. • Appointment reminders are given in various ways <ul style="list-style-type: none"> ○ automotive telephone calls; ○ text messages; ○ email reminders. 	<ul style="list-style-type: none"> • Organizational beliefs that limit the ability to change appointment systems that will allow patients or other offices to have access to the present schedule. • Are currently not willing to change scheduling practices to more up-to-date methods • Patients have limited access • This office knows very little about their no-show population • They have never collected data outside of the number of no-show appointments occurring monthly. • No real understanding of the impact of the present scheduling system has on their patient population.
Opportunities	Threats
<ul style="list-style-type: none"> • Opportunity to collect data about no-show population demographics. • Opportunity to collect data about missed appointment related to <ul style="list-style-type: none"> ○ day of week; ○ type of appointments; ○ time; ○ provider scheduled with. • This data may lead to future scheduling practices. • New opportunity to connect with patient population regarding this topic. 	<ul style="list-style-type: none"> • Change over in staff due to this office merging with another group. • Uncertainty within the roles of the project. • Staff resistance to participate. • No financial assistance for project implementation. • Lack of time to train staff on survey and new procedures. • Possible failure of technology • Lack of staff empathy.

Appendix H

Proposed Project Expense Budget

EXPENSE BUDGET

4/3/2019

DNP Project - Patient Centered Changes to Decrease Patient Absenteeism: A Quality Improvement Project

Expense	Category	Budget	Actual	Difference (\$)	Difference (%)
Lunch Meeting with office manager	Food	\$ 40.00		\$ 40.00	100%
Lunch and Learn teaching session with Staff (1)	Food	\$ 80.00		\$ 80.00	100%
Lunch and Learn teaching session with Staff (2)	Food	\$ 80.00		\$ 80.00	100%
Survey Paper	Office Supplies	\$ 30.00		\$ 30.00	100%
Clip Boards for Survey	Office Supplies	\$ 10.00		\$ 10.00	100%
Pens for Survey boards	Office Supplies	\$ 5.00		\$ 5.00	100%
Collection boxes for surveys	Office Supplies	\$ 100.00		\$ 100.00	100%
Ink	Office Supplies	\$ 100.00		\$ 100.00	100%
Storage Box	Office Supplies	\$ 10.00		\$ 10.00	100%
Misc (1)	Office Supplies	\$ 100.00		\$ 100.00	100%
Misc (2)	Food	\$ 100.00		\$ 100.00	100%
Total Expenses		\$ 655.00	\$ -	\$ 655.00	100.00%

Appendix I

Iredell Institutional Review Board Letter of Approval



February 7, 2019

ATTENTION: East Carolina University College of Nursing

Stephanie Canipe, East Carolina DPN student, presented her Quality Improvement Project: Patient Centered Changes to Decrease Patient Absenteeism, to the IMH Institutional Review Board. The Institutional Review Board approved the project, data collection tool, and the reminder letter. Ms. Canipe has been granted permission to conduct research at our facility.

Sincerely,
Justin Beck, Pharm D.
IMH Institutional Review Board Secretary

Appendix J

East Carolina University, College of Nursing Institutional Review Board Qualtrics Survey

Project Information:

Name of Project Leader: Stephanie Canipe, DNP Student, Kim Holland, MSN Project Community Liaison, Dr. Tracey Robertson-Bell DNP II Faculty

Project Title: Administrative Changes to Decrease Patient Absenteeism: A Quality Improvement Project

Brief Description of Project/Goals

The purpose of this QI project is to provide administrative procedural changes within a family medical clinic to lessen the no-show rate. Administrative interventions are feasible with providers and physician network management. The guiding question for this QI project is "Will the no-show rate for this primary care clinic be decreased with administrative changes to clinic procedures?"

The aim of this project is to enhance communication from this office to their patients related to their past and present appointments. This will be achieved with a missed appointment letter to no-show patients who fail to attend their appointment. Next, a brief survey will be asked of patients (excluding walk-ins or same day appointments) as they sign in at their appointments determining what mode of appointment reminder they received (telephone, SMS message or no message received) along with obtaining a satisfaction score for their reminder modality. Last an additional manual phone call reminder notification will be added to the current telephone/SMS system. This will give patients two appointment reminder notices. The first being 48 hours ahead of their appointment and the added being 24-hours prior to the appointment time.

Measurable outcomes for this QI project will include the following (1) The no-show rate during the intervention phase as compared to the previous months; (2) Effectiveness of staff lead manual phone reminder 24-hours prior to the appointment; and (3) Patient satisfaction scores for current office reminder systems.

Questions: Please review each question and check yes or no as related to your project.

- **Q1:** Will the project involve testing an experimental drug, device (including medical software or assays), or biologic (i.e. vaccines, blood products, gene therapy, tissues)?
 - The Research Decision Tool is based on the definition of research pursuant to the [Common Rule](#) (45 CFR 46.102(d)). The purpose of this question is to determine whether federal regulations beyond the Common Rule, such as FDA regulations, need to be applied to a project. If the answer to this question is "Yes," IRB review is likely required. Please contact the IRB Office for additional guidance.

[] Yes

[X] No

- **Q2:** Has the project received funding (e.g. federal, industry) to be conducted as a human subject research study?
 - The purpose of this question is to determine whether the project has received funding to be conducted as a research study and not, for example, quality improvement or program evaluation. If you are unsure, consider contacting your program officer for the funding or funding entity to determine whether the funding source requires a specific level of IRB review and oversight. If the funding source considers the project to constitute human subjects research, this IRB QI/Program Evaluation Self-Certification Tool is not a sufficient indicator of whether IRB review is required. If the answer to this question is "Yes," IRB review may be required. Please contact the IRB Office for additional guidance.

☐ Yes ☒ No

- **Q3:** Is this a multi-site project (e.g. there is a coordinating or lead center, more than one site participating, and/or a study-wide protocol)?
 - This question is intended to determine whether the project is limited to local activities or whether multiple sites are conducting the same activities. The latter is an indication that the results may be generalizable. If multiple institutions are conducting the activities, it's less likely that the outcomes will be used for quality improvement or program evaluation at the local institution. As a result, for multi-site projects, this IRB QI/Program Evaluation Self-Certification Tool is not a sufficient indicator of whether IRB review is required. If the answer to this question is "Yes," IRB review may be required. In this case, please contact the IRB Office for additional guidance.

☐ Yes ☒ No

- **Q4:** Is this a systematic investigation designed with the intent to contribute to generalizable knowledge (e.g. testing a hypothesis; randomization of subjects; comparison of case vs. control; observational research; comparative effectiveness research; or comparable criteria in alternative research paradigms)?
 - The focus of this question is to evaluate the primary intent and design of the project.
 - Simply publishing or presenting the results of a QI project does not make it research. The key question is what the primary intent of the project is from the outset. If the primary intent of the project is not generalizability (e.g., it is program evaluation/practice improvement related to a specific initiative) OR the project is not designed in a way that the findings would be generalizable (i.e., limitations to project design), then the answer to this question is "No".
 - The design of the project plays a key role in determining intent. If the project is standardized using systematic research methodologies with strong external validity in order to obtain reproducible results, then it would be considered research. If the intended outcome is simply to report on what happened at the institution/program, this does not indicate research design or intent as it may or may not be generalizable outside of the institution.

☐ Yes ☒ No

- **Q5:** Will the results of the project be published, presented or disseminated outside of the institution or program conducting it?
 - The purpose of this question is to determine whether, at the outset of the project, the intention is to disseminate results outside of the institution or program conducting the project. If there is no intention for disseminating results outside of the institution or program conducting the project, the answer should be “No”. Lack of dissemination of information is generally a strong indicator that a project does not constitute research. If there is a potential for results to be disseminated outside of the institution or program conducting the project, then the answer is “Yes”. Note that program evaluation and QI projects can be published or presented, but they should not be described as research studies.

☒ Yes ☐ No

- **Q6:** Would the project occur regardless of whether individuals conducting it may benefit professionally from it?
 - If the project is being done primarily to bolster one’s own scientific career path and advance his/her program of research, then “No” should be selected in response to this question. In contrast, if someone is required to complete a project for their medical residency or mandated to conduct a program evaluation by a funding agency, this indicates that the project would have to be conducted regardless of any professional benefit and in this case, the answer to this question would be, “Yes”.
 - The question is not focusing solely on whether an individual will professionally benefit, but rather whether they would conduct the project regardless of the potential for professional benefit.

☒ Yes ☐ No

- **Q7:** Does the project involve "no more than minimal risk" procedures (meaning the probability and magnitude of harm or discomfort anticipated are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests)?
 - The purpose of this question is to determine if the risk of participation in the activity would be considered above and beyond what would be acceptable or ordinarily expected with QI/PE. Increased risk secondary to participating in a project may indicate the project is human research that requires IRB review and approval.

☒ Yes ☐ No

- **Q8:** Is the project intended to improve or evaluate the practice or process within a particular institution or a specific program, and falls under well-accepted care practices/guidelines?
 - If the intention upon designing and conducting the project is not to improve or evaluate a specific practice/program, then the answer should be "No" which indicates research intent and IRB review is likely required.
 - This question is also trying to identify the specificity of a project, hence the use of “particular institution” or “specific program”. If it is being conducted in a multi-site context with a common protocol across sites, then the results could be generalizable

and thus constitute research. In this case, the answer should be "No" which indicates research intent and IRB review is likely required.

☒ Yes

☐ No

Appendix K

Satisfaction Survey Tool

Pre-Appointment Reminder Communication Survey

Our office is conducting a survey to evaluate the most frequently used appointment reminder and your perception of this communication.

Directions: Please fill out the survey. Put in box located in the exam room. All information is confidential.

1. What is your age group?

- ☐ 18-27
- ☐ 28-38
- ☐ 39-49
- ☐ 50-59
- ☐ 60+

2. What is your gender?

- ☐ Male
- ☐ Female

3. What type of appointment reminder did you receive prior to this appointment?

- ☐ Automated telephone call to home or cell phone
- ☐ Text Message
- ☐ Email in patient portal
- ☐ I did not receive a message to come to this appointment today

4. If did not receive a message prior to your appointment today can you state what type of appointment you are here for

- ☐ follow-up
- ☐ blood work
- ☐ injection
- ☐ other, please fill in blank _____
- ☐ n/a, I received a notification

OVER

1. On a scale from 1-5 how satisfied are you with the type of appointment reminder that you are currently receiving?

- ☐ 1- Very dissatisfied
- ☐ 2- Dissatisfied
- ☐ 3- Neutral
- ☐ 4- Satisfied
- ☐ 5- Very Satisfied

2. Do you feel that receiving more than one reminder notification helped you to remember to attend this appointment?

- ☐ Yes
- ☐ No

3. Are there any comments or suggestions that you would like to make about appointment reminders that you feel would be helpful to our office? (please write in the space below)

Data Collection Tool for Outcome Number One

		Dr. Jodi Stuttts					Lori Sumner, PA					Kristie FNP					TOTALS
		NP	Lab	PE	F/U	O	NP	Lab	PE	F/U	O	NP	Lab	PE	F/U	O	
Week 1: 5/15-17	Monday	Data not collected on Monday and Tuesday (Prior to beginning of project)															
	Tuesday																
	Wednesday																
	Thursday																
	Friday																
Week 2: 5/20-24	Monday																
	Tuesday																
	Wednesday																
	Thursday																
	Friday																
Week 3: 5/27-31	Monday																
	Tuesday																
	Wednesday																
	Thursday																
	Friday																
Week 4: 6/3-7	Monday																
	Tuesday																
	Wednesday																
	Thursday																
	Friday																
Week 5: 6/10-14	Monday																
	Tuesday																
	Wednesday																
	Thursday																
	Friday																
Week 6: 6/17-21	Monday																
	Tuesday																
	Wednesday																
	Thursday																
	Friday																
Week 7: 6/24-28	Monday																
	Tuesday																
	Wednesday																
	Thursday																
	Friday																
Week 8: 7/1-5	Monday																
	Tuesday																
	Wednesday																
	Thursday																
	Friday																
Week 9: 7/8-12	Monday																
	Tuesday																
	Wednesday																
	Thursday																
	Friday																
TOTALS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stuttts Total			0				Sumner Total					0		Kristie Total			0
Totals for Days of the Week																	
Monday		0															
Tuesday		0															
Wednesday		0															
Thursday		0															
Friday		0															
Totals for Types of Appointments																	

Appendix M

24 Hour Reminder Phone Call Log & Data Sheet

24-Hour REMINDER PHONE CALL LOG & Data Sheet																																
May																																
	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Totals
Number of appointments scheduled	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of phone calls made	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Please put an the number 1 in the appropriate response daily...there should only be one response per day																																Totals
1. No answer/no message	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2. Confirmed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3. Left Message	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Rescheduled	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June																																
	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Totals	
Number of appointments scheduled	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of phone calls made	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Please put an the number 1 in the appropriate response daily...there should only be one response per day																																Totals
1. No answer/no message	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2. Confirmed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3. Left Message	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4. Rescheduled	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
July																																
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Totals
Number of appointments scheduled	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of phone calls made	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Please put an the number 1 in the appropriate response daily...there should only be one response per day																																Totals
1. No answer/no message	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2. Confirmed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3. Left Message	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4. Rescheduled	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals :																																
	May	June	July	Total																												
Number of scheduled appointments	0	0	0	0																												
Number of Reminder phone calls made	0	0	0	0																												
Number of "No answer/no message"	0	0	0	0																												
Number of "confirmed"	0	0	0	0																												
Number of "left Message"	0	0	0	0																												
Number of rescheduled appointments	0	0	0	0																												
If number of calls do not equal number of scheduled appointments please explain why?																																
Example: Did not have patient demographic data available																																

Appendix N

Survey Data Sheet

Survey Data Sheet																																
May																																
	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Number of Surveys Handed Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Surveys Collected	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June																																
	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Totals	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Number of Surveys Handed Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Surveys Collected	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
July																																
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Number of Surveys Handed Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Surveys Collected	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals																																
Total Number of Surveys Handed Out for May, June, & July																				0												
Total Number of Surveys Collected for May, June, & July																				0												
<u>If surveys not handed out please give reason why</u>																																
Example: Did not have pt address																																

Appendix O

Survey Results Data Worksheet

Survey Results						
1. Age	18-27	28-38	39-49	50-59	60	
2. Gender		Male		Female		
3. Type of reminder received	Automated telephone call to home or cell	Text Message	Email in Patient portal	Did not receive a message to come to appointment		
4. If did not receive a message prior to your appointment today can you state what type of appointment you are here for:	Follow up	Blood work	Injection	Other - Fill in blank response	N/A, I received a notification	
4-D Responses to the Fill in the blank						
	a.					
	b.					
	c.					
5. On a scale from 1-5 how satisfied are you with they type of appointment reminder that your are currently receiving?	1. Very dissatisfied	2. Dissatisfied	3. Neutral	4. Satisfied	5. Very satisfied	
6. Do you feel that receiving more than one reminder notification helped you to remember to attend this appointment today>	YES		NO			
7. Are there any comments or suggestions that you would like to make about appointment reminders that you feel would be helpful to our office? (please write in the space below)						
	a.					
	b.					
	c.					

Appendix P

Reminder Phone Call Script Algorithm

Step 1: Dial # if there is an answer ask for the patient by name

If patient is there and speaking, then read the following:

“Hello, my name is _____. I am calling to remind you that you have an appointment with
{name of provider} at Iredell Family Medicine tomorrow at {time}. Will you be
attending?”

If Yes --- Say thank you and confirm on Excel data sheet

If No--- Ask if they patient wishes to have the appointment rescheduled? Either cancel the
appointment or make the change in Allscripts and document on Excel data sheet

If patient is not there, say thank you and ask if there is a better time for you to call back later.

If Yes--- Call back if during business hours

If No---Say thank you

*Remember do not talk to anyone but the patient or the patient’s representative listed on HIPAA
form.*

OR

Step 2: If there is no answer but an answering machine then a message should be left only
stating that the patient has an appointment at Iredell Family Medicine tomorrow at
{time}. Then document response on Excel data sheet.

Step 3: If no answer and no way to leave a message then document that as the response on the
Excel data sheet.

Appendix Q

Survey Script

MOA Survey Introduction:

“Our office is conducting a brief survey to determine the most dominantly used type of appointment reminders and your perception of this process. Would you assist us today by taking this quick confidential survey?”

Pt: No: Thank you for consideration

Pt: Yes:

Please fill out the survey.

Do not put your name on it.

When finished place it in the survey collection box in the exam room.

Please hand your clip board and pen back to the nurse or clinical assistant who calls you back to the exam room.

Thank you!

Appendix R

Data Results

Figure 1. Survey Participant Age Demographics

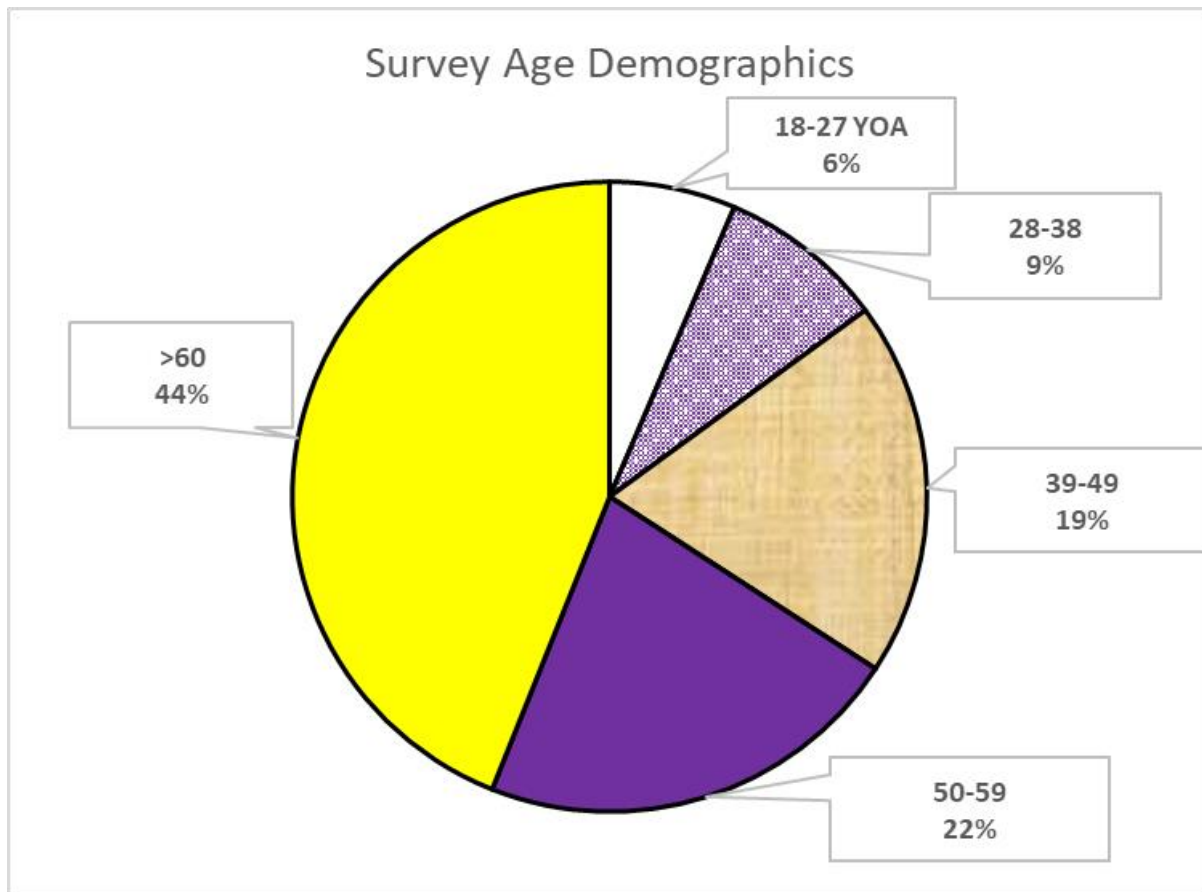


Figure 1. Excel chart defining survey participants age demographics. The vertical line represents each age category and the horizontal line defines the number of completed surveys.

Figure 2. Provider No-Show Outcomes

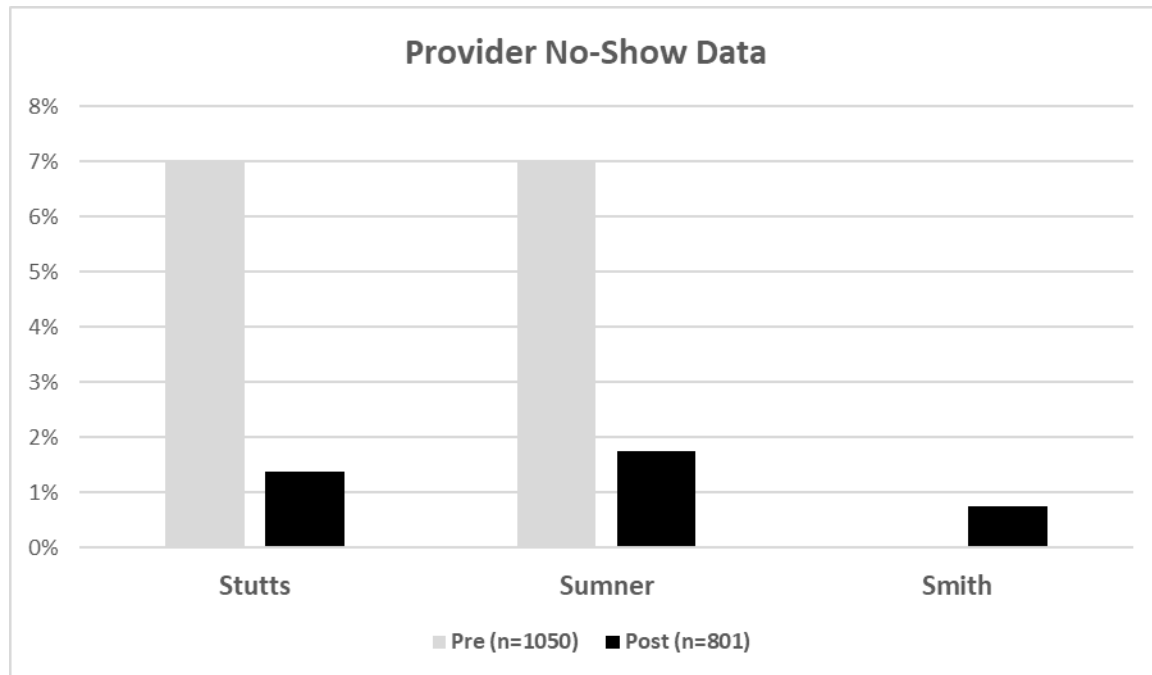


Figure 2. Excel chart defining no-show rates for individual providers both pre and post intervention. (n= #of appointments scheduled). Pre-intervention appointment number designated from an 8-week period examined from 2018 had a total of 42 business days in which a mean average of 1,050 patients scheduled (based on average of 20 to 30 patients per day clinic average). Provider Smith was not employed during the pre-intervention phase.

Figure 3. Patient Survey Satisfaction Scores

Satisfaction Level	Replies	Percentage
1. Very Dissatisfied	50	13%
2. Dissatisfied	03	1%
3. Neutral	36	10%
4. Satisfied	87	23%
5. Very Satisfied	196	53%

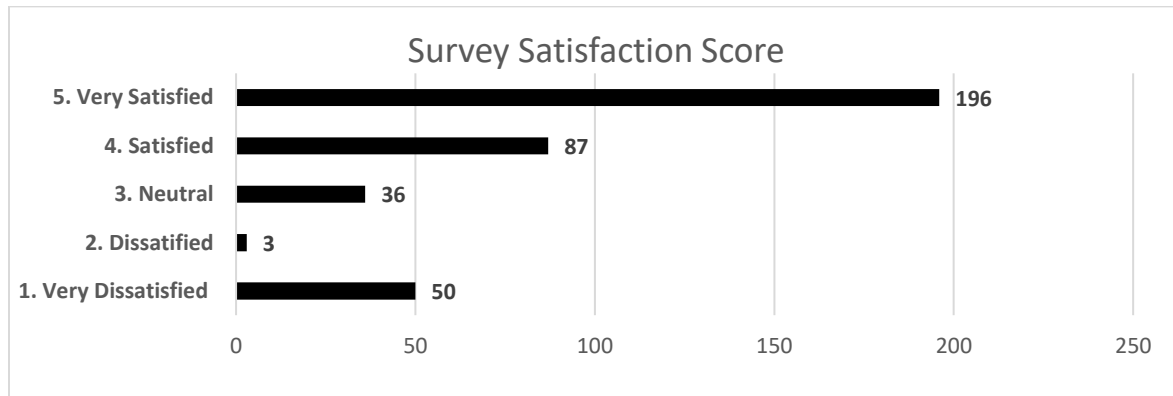


Figure 3. Excel chart defining survey participants satisfaction with current appointment reminder system. The vertical line represents Likert Scale scores and the horizontal line defines the satisfaction score value.